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Computer Weekly
Thursday, June 17, 1982

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Cuts could damage research permanently

by Philip Hunter

COMPUTER departments at universities and polytechnics have suffered more than they expected in the current round of government cuts. And the government has been warned that permanent damage could be done to research in the UK unless more money is provided.

This is the view of many key figures both inside and outside the universities, who claim that some young computer science departments without well-established roots have withered in the financial drought.

"At St Andrews University, the computer science department has been wiped off the map because other departments are strong," says Gordon Ewan, training executive at the Computer Services Industry Training Council.

The application of cuts at particular universities is usually determined by the clout each department wields within the university itself, rather than by the department's contribution to industry. As a result government cuts are sometimes apportioned differently from the way they were originally intended.

The government was warned last week that university research in general will suffer over the next few years. The warning came from an official working party led by Sir Alec Merrison, vice-chancellor of Bristol University.

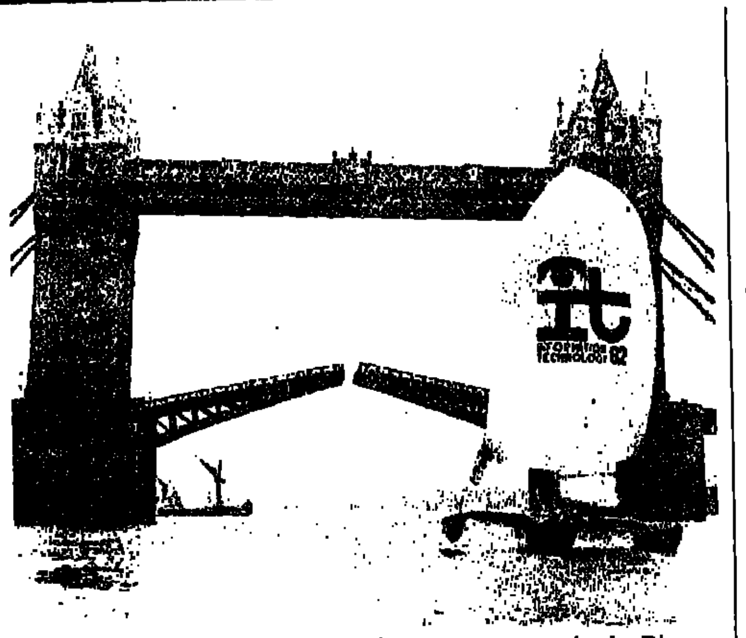
Unless "relatively modest" sums of money are put up by the Department of Education permanent damage will be caused to the UK research effort, a report from the working party says.

The report comes out in favour of the dual funding system, by which university research is supported both by the University Grants Committee (UGC) and by other external bodies such as SERC, the Science and Engineering Research Council.

But dual funding is not popular among all academic staff at universities. According to Jozef Gluza of Cambridge University, who is also a local secretary of AUT, the Association of University Teachers, dual funding can lead to research being funded on the cheap.

"Universities are employing staff on outside grants who should be on UGC funds," he says.

Few of the staff at the Cambridge University computing laboratory enjoy security of tenure and this, says Gluza, can prejudice the research effort.



IT 82, Information Technology Year's eponymous entry in the Binatone Round Britain race starting on July 10.

Images over the waves

by Jack Gee

A NOVEL computerised communications system devised by France's Thomson-CSF has enabled television images to be transmitted thousands of miles across the ocean from yachts taking part in a recent Transatlantic race.

The Thomson venture enables news media to follow a sea contest which cannot be covered by reporters on the spot.

Thomson has proved it can overcome this handicap thanks to its Tevelex system which feeds a video signal from a shipboard camera into the microphone input of the vessel's radio.

Signals transmitted in this manner were received at the Thomson Press centre in the centre of Paris, reconverted and the image displayed on standard television screens. The audio information was recorded on tape and played back in the form of images.

In London last week, yachts also featured in information technology. An IT 82 yacht which is taking part in the Binatone Round Britain and Ireland Race made its debut on the Thames.

'TV cable must be two-way'

by Donald Kennett

THE capacity for two-way links to be a requirement of the national wideband cable network the government is determined to see in the mid-1980s.

Speaking at last week's meeting of the Parliamentary Information Technology Committee, Information Technology Minister Kenneth Baker confirmed that this had been decided in private discussions between the various interested ministries in advance of the results of any of the studies currently under way.

Cable television networks in the US must have this capability to qualify for a franchise. The earlier calls to re-cable the UK stressed that advanced interactive services offered the most exciting prospects for the medium to long term, even if television programme and film distribution dominated early traffic and economics in the early days.

But until the role of British Telecom is established it will be unclear whether the proposed wideband network would compete with BT's networks, complement them, or be part of them.

"BT has great expertise and advantages to offer," Baker said, "and I am anxious they should be harnessed."

Baker said that creating a technical, judicial and commercial framework that would allow the successful establishment and exploitation of a wideband network and also foster the participation of UK industry in the provision of software and hardware for the services that would run on it, was the most complex matrix of decisions in this country since the

CPI to shut UK plant

by Andrew Thomas

SEVEN years after being saved from the dole queues, 190 mostly ex-ICL employees will again be heading for the job centres. The Computer Peripherals Inc printer plant in Stevenage is to close in October as part of Control Data's complex recovery plan for ailing printer manufacturer Centronics.

CPI came into being in October 1975 to produce printers and other peripherals for ICL, NCR, and Control Data. CDC took a 60% share and the other two partners 20% each. Most of the initial workforce was composed of redundant ICL workers from the Stevenage/Letchworth area.

In January of this year it was decided that all of CPI's printer business, worth between \$60 and \$70 million, would be handled by Centronics. The loss of printer manufacture means that the Stevenage plant can no longer justify its existence.

The CDC plan involved payment of \$25 million plus its holding in CPI for a 35.5% share of Centronics. ICL and NCR both get 4.7% of Centronics.

In a goodwill gesture, CDC is proposing to Stevenage Borough Council the establishment of a Business and Technology Centre in the CPI plant. It would provide a means for small businesses to start and operate profitably by the provision of office, research and development and manufacturing space at a cut price.

CDC already operates five similar centres in the US, with a further nine planned.

Plessey into office automation

by Sarah Hardcastle

PLESSEY has made its long-awaited debut in the office automation arena with the launch of its Integrated Business Information System.

With the announcement, Plessey emerges as a leading protagonist of the PABX or star based approach to office automation.

The system is built around Plessey's PDX private automatic digital telephone exhange and includes the first of a planned series of terminals, software products and facilities for connection to other networks. Terminals and word processors from other manufacturers can be easily connected to the system.

Graham Burke, director of Plessey Office Systems, said: "We decided three elements must be incorporated: an architecture facilitating communications between all types of devices; a range of workstations satisfying all users; plus a range of application packages providing users access where and when they want it.

"By basing Ibis on the telephone network, terminals can be sited wherever there's a telephone access point. In addition, existing network users are not involved in a major upheaval when office automation is introduced."

To accommodate the office system, Plessey has upgraded the PDX to allow voice, text and data to be carried down existing telephone lines simultaneously. Upgrades to existing installations can be done in the field.

Commodore holiday offer

by Philip Hunter

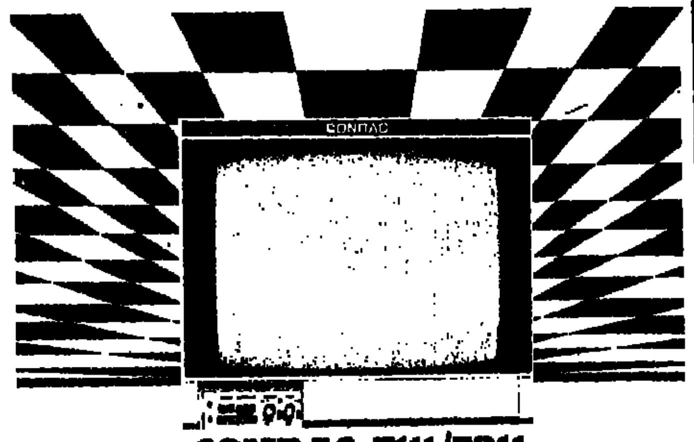
IN an unusual sales drive for its microcomputers, Commodore is offering UK holidays to final buyers of its business system. These will be awarded at the discretion of dealers to customers who spend "a reasonable amount of money" – in other words upwards of £1,500.

Commodore says the offer, which expires at the end of June, is intended as a fillip to dealers at a time of year when sales of business systems are traditionally slack.

But like its arch-rival Apple, Commodore has been struggling to meet ambitious sales targets set for this year, and it is likely the novel move is a pre-emptive strike at the imminent competition from makers of larger machines.

The holidays will be awarded in the form of a voucher redeemable at any one of 45 country hotels throughout England, Scotland and Wales. Each voucher gives two people a two-week break at one of the hotels, and is worth about £300.

The total scheme will cost Commodore £150,000, and is hoped to increase June sales of the 8096 business system from the present monthly level of 1,500 to 2,000. Sales of the Apple II have also been running at 1,500 a month.



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Co-operative agreement for local area networks

20 firms join in international standards

by Nicholas Enticknap

A CO-OPERATIVE agreement on international standards unparalleled in computer industry history was announced in London this week by ICL on behalf of 20 companies. They include CII-Honeywell Bull, Digital Equipment, Fujitsu, Hewlett-Packard, Intel, Siemens and Xerox.

These companies have declared their commitment to supporting two European Computer Manufacturers Association communications standards for local area networks. In International Standards Organisation (ISO) communications terminology, they relate to the bottom four of the seven layers: the transport layer, the network layer, and the physical and data link layers.

The latter two are covered by a single new ECMA standard, but approved only two weeks ago, which is largely compatible with Ethernet. The data link layer specifies the use of CSMA/CD (carrier sense multiple access with collision detection) techniques, as opposed to the ring or token-passing techniques used by some systems competing with Ethernet.

The CSMA/CD techniques are related to the physical medium, which is baseband coaxial cable, as opposed to fibre optic cable.

The 20 companies go further than Ethernet, however, in supporting the ISO transport layer protocol as well. This is based on an existing ECMA standard. It guarantees data transfer from one device to another independent of the physical medium.

ICL said that the system it has been describing over the past year as "a ten megabit LAN" will support these new standards, but it announced no new products.

ICL will offer LAN support and consultancy to users setting up their own pilot systems through its Netskil operation. It will be available to both ICL and non-ICL users. The company added that products implementing the standards in silicon will be announced within a year.

The other companies committed to supporting the ECMA standards are Logica BTS, L. M. Ericsson, Mitel Corp, NTL, Nixdorf, OTL, CTL, ITL, Olteco Olivetti Telecommunicazioni, Ungerman Bass, 3 Comm, and Three Rivers Corp.

The significance of the agreement was spelt out in typically eloquent fashion by ICL managing director Robb Wilmot. "Hitherto We have had a world dominated by de facto standards and ho-hum performance that can come with a single dominant supplier", he said.

"The lack of international standards has slowed down the growth of information technology, and prevented users from realising the full value of their investment".

It also, he said, involved them in additional unnecessary expense, such as gateways, protocol converters and special software. The new agreement, which Wilmot described as "unprecedented", makes a major contribution to stopping all that, and must be hailed as a landmark step in the evolution of information technology, notwithstanding the absence of IBM from the list of supporting companies.

JENKINS . . . "Job turnover will be tremendous".

'5 million jobless by 1984 unless govt acts on technology'

by Kevan Pearson

UNEMPLOYMENT in Britain could rise to five million in less than two years unless the government acts positively to prepare society for the introduction of new technology, Clive Jenkins, leader of one of the UK's largest white collar unions, told the World Computer Services Industry Congress in Copenhagen this week.

Jenkins, general secretary of the Association of Scientific, Technical and Managerial Staff, added that he had "profound disbelief" in the idea that the computer services industry would create jobs.

He said: "Job turnover will be tremendous, and casualties enormous. Even Japan is not immune. We are now seeing the first signs of unemployment growth in Japan".

The effect of job losses, said Jenkins, would fall on both the traditional manufacturing industries already in heavy decline, and on office jobs.

In the City of London alone 350,000 office jobs would vanish in three years, he predicted.

In the future we would radically need to redefine what we meant by unemployment and restructure the education systems to provide "tertiary training". He said the impact of new technology on employment would not be overcome solely by a reduction in the retirement age or by a cut in the working week.

Commenting on the problems faced by the UK, he said selective import controls and a reintroduction of exchange controls were necessary. This, he added, would lead to the withdrawal of the UK from the Common Market since "it strikes at the roots of the Treaty of Rome".

Earlier in the session the Congress had been told by Denmark's Minister for Labour Svend Auken, that EODC figures, showed a "job gap in the Western world of 30 million, which is widening at a rapid pace".

However, he added that "the employment problem will not be solved by placing restrictions on the use of new technology."

NEWS BRIEF

Videotext for Personal Computer

IBM last week announced videotext products in the US on its Series 1 minicomputer and on the Personal Computer. The announcement follows IBM's successful bid to supply a £12 million public viewdata system to the West German Bundespost telecommunications authority last year.

The Personal Computer videotext facility is supplied under IBM's third party software scheme by Wolf Data in the US and consists of a plug-in "feature card".

Japanese talks

IBM has confirmed that talks are under way with Japanese consumer electronics manufacturer Matsushita, but no agreement has yet been reached on a joint venture to produce and sell personal computers. IBM plans to launch a machine capable of handling the Japanese language.

Sale of IAL

IAN SPROAT, Under Secretary of State for Industry, confirmed in the Commons on Monday that the sale of International Aeradio (IAL), a subsidiary of British Airways, was under consideration. IAL specialises in telecommunications for the aviation industry and for defence.

Aregon news

DOW JONES, the US' leading information provider with over 44,000 users, has opted for Aregon's IVS-3 videotex system for the Princeton New Jersey cable TV system. IVS-3 will also be able to offer news and information to other US cable systems.

DoI gives its backing to high-level language translation project

by Claire Gooding

THE Department of Industry is backing an ambitious project to translate applications written in Basic into the portable high level language C.

If successful, it could bring a flood of much-needed end user software into the busy Unix market, and further its case to become a standard.

The Microelectronics Applications Research Institute, MARI, in Newcastle-upon-Tyne is getting a 50% grant of £25,000 to build experimental translation facilities for the project.

Although the C language is usually associated with the Unix operating system from Western Electric, the language is taking on a life of its own. While C is a high level language, it has the acute powers of an assembly-like language and has proved itself in systems and applications programming. Unix itself is written in C.

"The Department of Industry sees that C could be a useful language for a lot of software", explained MARI's manager of advanced software, John Dobson. "It will also be of interest to people who want to go with Unix and take their applications with them."

Once translated into C, applications would be highly portable across a variety of machines, and very efficient in execution, unlike most translated or generated programs.

Although there is a Unix version of Basic, it makes more sense to translate programs into C so that applications can link directly with Unix facilities.

"Putting a package into C is the first step", said Dobson. "Once there, software suppliers can produce a version with extra hooks into the OS to exploit the Unix environment. Our translator will be geared to people who want to do that."

● Professor Brian Randell of Newcastle University has backed the Unix philosophy as the way forward to a national programming standard. His proposals, already tested against several large British software houses such as CAP and Logica, were presented as a seminar at the Royal Signals Research Establishment. They will go forward to the Alvey Committee, set up in response to Japanese "fifth generation" plans, for presentation to the Department of Industry.

"The Unix interface has a chance of becoming the ad hoc standard of the Eighties. That doesn't mean it is perfect, but many organisations, including MARI, have already voted for it with their feet and their wallets."

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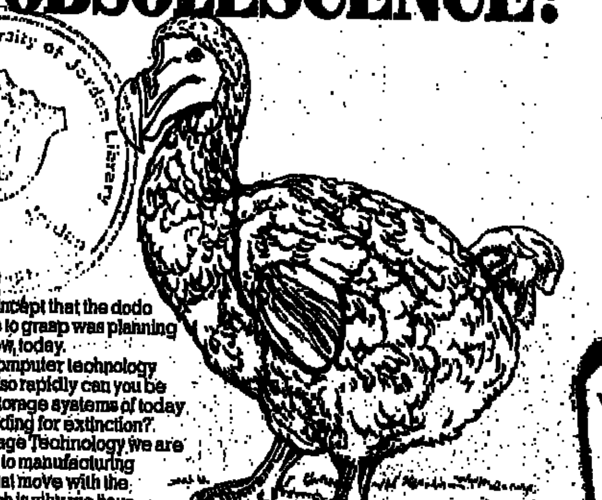
EVOLUTION OR OBSOLESCENCE?



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STORAGE TECHNOLOGY

Rediffusion to sell videotex systems in US

by Boris Sedacca and Donald Kennett

REDIFFUSION Computers has entered the US market for the first time through a Utah-based data entry bureau and systems house.

Under an agreement signed with Blodgett Computer Information Systems of Salt Lake City, Blodgett will sell the newly-announced Rediffusion R2800 Telecentre range of office videotex systems and the Teleputer terminal range.

The two companies expect the agreement to yield revenues of about $20 million over the next five years.

The Telecentre range replaces the R1800 series, offering an enhanced operating system for public network telecommunications via switching multiplexers. Networking software monitors line activity and devises alternative routes if a line goes down, optimises link utilisation and allows users to queue for busy destinations.

Applications include a Corporate Viewdata System and a management support system called Advisor providing diary, calculator, in-tray, messaging, filing and text processing facilities.

The Corporate Viewdata System is an enhanced version of the Viewdata Plus software available on the R1800, adding Prestel's tree-structured database access method to the existing index sequential method, as well as billing facilities.

Options include a £50 voice response terminal and a VDU which conforms to Swedish ergonomics requirements and US radio frequency interference standards.

"Our distributor, Blodgett Computer Information Systems will sell the system but Rediffusion will maintain it. It will be marketed by geographical territories, beginning with the State of Utah," explained Mike Aldrich, of Rediffusion Computers.

ALDRICH . . . "Expecting agreement to yield revenues of about $20 million over the next five years."

Government computer staff win pay increases of up to 18 per cent

by Andrew Thomas

THE government has agreed to pay substantial extra rises to its computer staff in what it describes as an attempt to persuade them to stay in the public sector. But the Society of Civil and Public Servants believes that the extra cash is an attempt to buy off the "militant" workers who were in the forefront of the Civil Service strikes in 1979 and 1981.

The union represents 6,000 programmers, analysts and operators, and has negotiated an 11.5% increase in computer allowances for executive officers. An executive officer with three years' experience will now get a £900 annual allowance. Higher executive officers are eligible for £500 a year after one year's experience.

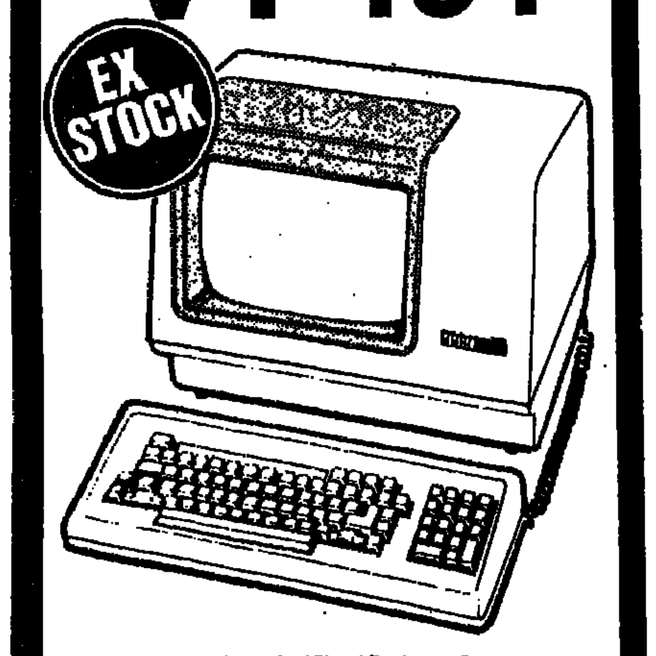
One of the major achievements for the union has been the lifting of grade maxima for DP workers. In some cases an increase of 18.7%, payable from April 1, 1982, will be awarded, while non-computer staff are subject to a 5.5% ceiling.

Assistant general secretary Leslie Christie commented: "These increases would not have been agreed by the government but for the willingness of our computer members to play an important role in the Civil Service strike campaigns of 1981 and 1979. But if the government believes it can buy off all our computer members by agreeing to these increases it had better think again.

"Next year we will be expecting substantial increases in the main scales, and to make further improvements in the computer allowances."

CHRISTIE . . . "The government had better think again"

But a Treasury spokesman insisted that the main reason behind the extra allowances was to retain staff.



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Minister's pledge to rethink BT-Mercury connection

by Our Parliamentary Correspondent

THE government says it will reconsider its position on the terms for connection between British Telecom and the Mercury alternative telecommunications network if an agreement is not possible by the end of July.

Information Technology Minister Kenneth Baker made the point in the Commons last week. But he added that both sides were still negotiating on the connection between Mercury and the public switched telephone network and on Mercury's access to separate international circuits.

Michael Marshall (Con, Arundel) asked for confirmation that Mercury orders for fibre optics would be placed shortly and for an estimate of when it was hoped that the alternative network would be in place.

Baker said that the alternative network would certainly mean jobs in the UK. He understood that orders would be placed shortly as Mercury hoped to provide the service to the public in the second quarter of next year.

Bell comms service due next month

by Howard Karten

AMERICAN Telephone and Telegraph's long-awaited packet-switched telecommunications service will make its debut next month. The service, to be called Advanced Information Systems Net/One will provide transparent data communications connecting a wide variety of terminals, VDUs and computers.

AIS, which has also been referred to as Advanced Communications Services since its announcement 30 months ago, will be the first offering from the unregulated Bell subsidiary to be called American Bell.

"This is a major moment in our history", said Charles Brown, AT&T chairman, at a New York Press conference announcing the service last week.

AIS will run on a combination of DEC VAX and IBM Series One hardware, using software developed within the Bell system. Usage fees for data transport on Net/One will be volume sensitive, and not based on distance, as conventional long-distance calls are. There will also be a fixed monthly port charge, as well as storage charges.

Net/One will eventually operate in 17 of America's largest cities, with expansion to 100 cities by 1984.

Swift II bank contract goes to Burroughs

by Andrew Thomas

BURROUGHS is to be the prime supplier for the prestigious multi-million dollar Swift II international banking system. Six companies tendered for both mainframe and peripheral equipment, and it is Burroughs which will be supplying a B5900 on which development of the new system will begin.

It is planned to begin live running of Swift II between 1984 and 1986, gradually replacing the existing system, which is also based on Burroughs hardware. There are currently three main data centres, in Belgium, Holland and the US, where clusters of B4800s handle the 340,000 international banking transactions which pass through the system on a typical day.

Paul Zahn of Swift's Brussels headquarters says that Swift II is designed to deal with upwards of two million transactions a day.

"This is *the* system," says Zahn. "It's open-ended – the equipment will wear out, be replaced or get upgraded, but the conceptual system will remain unchanged."

Asked why Swift had again opted for Burroughs, Zahn replied: "We have always had a good relationship with Burroughs, but it was a close, hard-fought thing."

The new system, replacing the existing Burroughs hardware in use since 1977, will make much more use of distributed processing rather than the traditional large data centres.

"The old system can cope with about 500,000 transactions a day," says Zahn, "but because of the distributed intelligence of the new system, we can just add more hardware when the system approaches its limits."

IPC Viewdata to close

by Donald Kennett

IPC VIEWDATA, one of the original information providers on Prestel, is closing down at the end of August. The service run by IPC, publishers of Computer Weekly, was consistently among the most popular on Prestel, but the company felt the expense of maintaining it could no longer be justified in the absence of an adequate return from page access and advertising.

IPC's printed magazine Viewdata and TV User, which includes one of the official Prestel directories, has been sold to Eastern Counties Newspapers, publishers of its rival Prestel User. ECN itself cut back severely on information providing activities last June.

ComputerWeekly

Thursday June 24, 1982 Vol 32 No 814

IPC Electrical-Electronic Press Ltd, Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS. Telex: 892084 BISPRS G

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Subscriptions UK £22, Students £11; US, Canada $93.60, Students $46.80; Europe, Middle East, Students £19.56; North & South Africa (airmail) £52.64; North & South America, Southern Africa, South Asia (airmail) £62; Far East, Australia & New Zealand (airmail) £70.84.
Circulation Dept IPC Business Press (S&D) Ltd, Oakfield House, Perrymount Road, Haywards Heath, Sussex. Tel: 0444 459188.
Publishing Director: Dr J A G Thomas
Editorial Director: Chris Hipwell
Publisher: Simon Timm
Published weekly on Thursday. Registered at the Post Office as a newspaper.
ISSN 0010-4787.

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Cullinane into colour graphics

by Maggie McLening

DATABASE specialist Cullinane, developer of the widely used IDMS database system, has now joined forces with Computer Pictures to blossom into business colour graphics.

It is a logical move for Cullinane, which has built up a comprehensive range of products around IDMS, including productivity tools such as ADS/Online, networking facilities, and application systems. Trend-Spotter 82 now gives users the opportunity to display information extracted from IDMS in suitable format for use in presentations, and to manipulate it with colour graphics.

"Business is the same the world over – there is always a senior executive making decisions, and this will enable them to sit at a terminal to extract bottom line figures, which can sometimes be difficult to interpret. Having colour will add clarity", explained Vic Morris, managing director of Cullinane (UK).

Computer Pictures is the newly-formed UK arm of Computer Pictures Corp in Boston, which launched Trend-Spotter 82 in the US in February. There are about 100 current users of the system, mostly in companies within the Fortune 500 bracket.

BRADLEY . . . . "First link-up with a database".

"Although Trend-Spotter will interface with virtually any computer from any manufacturer, this is the first link-up with a database," said Floyd Bradley, UK managing director of Computer Pictures.

Based on an Altos 8-bit microcomputer with 40 Mbytes of storage, Trend-Spotter uses local intelligence to produce graphs, pie and horizontal bar charts, scheduling charts, and thermatic maps on a raster-scan colour terminal.

The most commonly used graphical and chart commands are pre-set in the keyboard, simplifying the building process, and up to 15,000 pre-produced screens can be stored on disc. Hard copy can be produced from the screens as either 35 mm slides, overhead viewgraphs or as printed output.

Trend-Spotter is to be available for use with Cullinane's application systems, as well as the Online Query Language, and costs £32,000 for hardware and software.

Philips quick off the mark with software tool

by Claire Gooding

ONE of the fastest programming tools in the West has reached the UK. Philips Business Systems DP Division has tied up with European systems house Softlab to offer its Maestro software development system on Philips' P7000 minicomputer workstations.

The main targets for Maestro are overloaded DP shops where improved productivity can often mean overloading the central mainframe and slowing response times. Maestro claims to increase DP productivity up to 50% and, by using the Philips P7000 mini, keep response times down to under a second.

Maestro is already widely known in the US and Europe under the name Pet, with over 6,000 users in large installations such as the Bank of America, and the Bavarian State Chancellor's Office in Munich, where Softlab is based.

Softlab is heavily involved in "software engineering" and evolved Maestro for its own development work, releasing it as a product in 1976.

"The raw material of any software job is words" said Maestro developer Bob Taylor, of Softlab. "We aim to take everything off the desk and put it on the machine."

The Philips kit was chosen as the vehicle for Maestro because its unusual architecture makes the system's "window" technique work extremely fast. The system attacks the software development problem using techniques akin to word processing, which cut out repetitive jobs and allow programmers to lift text from one job to another.

The programmers are given "windows" on various jobs and they can swap between them very quickly, leaving particular jobs "frozen" at whatever point they leave them. The tool can be used to implement in-house standards as well as providing various development and editing aids.

Maestro costs £1,200 to £1,400 a month for software, plus up to £90,000 for a 16-screen P7000.

Cement group axes 70 data processing jobs

by Donald Kennett

CONTINUING recession in the building industry has caused cement manufacturer Blue Circle to make 70 of its 170 data processing staff redundant.

Under the procedural agreement between the company and its union, the British Cement Staff Association, all 32 contract staff in the department are leaving with the exception of a systems programmer and a staff trainer. Because of their specialised knowledge they will go with the last of the permanent staff in the autumn.

The redundancies affect all types of DP staff including programmers, operators and data entry operators, most of whom are based at the company's computer centre in Bromley.

Where possible, staff being made redundant under the last-in-first-out provision of the agreement are being redeployed to replace those volunteering for redundancy or retirement.

These are the first redundancies to affect the Blue Circle DP department following cuts elsewhere in the company of 1,500 jobs in 1980 and 1,100 earlier this year. Total UK staff now numbers about 12,000 on 70 sites.

Union representative Martin Cook described the negotiations as amicable under the circumstances. Management and union had worked together towards the best long-term interests of the staff, and had always been willing to listen. The union had been treated with respect, he added.

There had been some criticism of management at union meetings, but it had not been overwhelming. "Personally I would have been surprised if the computer services department had emerged unscathed from the company's troubles," he said.

Billion francs revenue is CGS aim

by Jack Gee

CAP-GEMINI-Sogeti, Europe's leading software group, expects 1982 to be a "10 digit year" in which its consolidated revenues will attain one billion French Francs (£80 million), executive chairman Serge Kampf announced in Paris.

Presenting the group's 1981 results, Kampf said: "The year has not proved bad at all, with the successful integration of our American subsidiary DASD into the group and the start-up and development of a large number of high quality technical projects."

Kampf said the current year would mark Sogeti's entry into "hardware-plus-software" systems with the recent creation of its first French subsidiary specialising in this field, CAP-Sogeti Instruments.

Crister Ugander, president of CAP-Sogeti's Europe group, said: "We are looking around for new properties in Britain, but have no plans for fresh acquisitions in the short term. We are now developing and selling the computer-aided despatching system, which we have already successfully sold to British police forces.

Government outlines IT spending

By our Parliamentary Correspondent

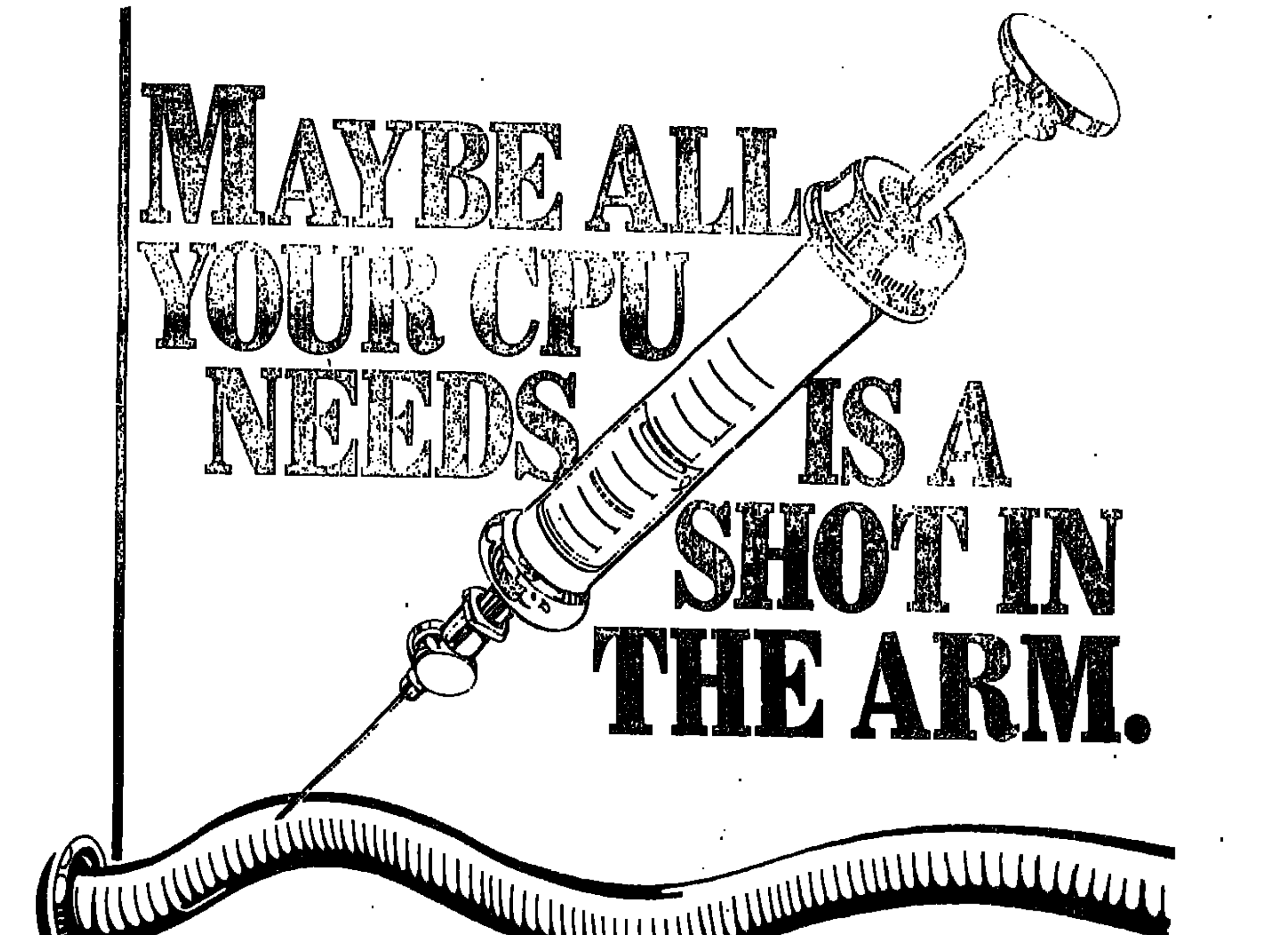
BY 1983-84 the government will be spending twice as much on information technology programmes as had been planned by the last government, Patrick Jenkin, Secretary of State for Industry, claimed in the Commons.

He told MPs that the sums committed by the government were £70 million in 1980-81 and £91 million in 1981-82.

This included support for microelectronics development and application projects, development of IT products and processes, and space research and development.

Cash allocations for the next three years stood at £134 million for 1982-83, £165 million for 1983-84 and £168 million for 1984-85.

In addition to projects already announced, the money would go on new schemes for fibre optics, computer-aided design manufacture, robotics, flexible manufacturing systems and office automation, as well as micros for general practitioners, the micros in schools scheme, IT centres and the small engineering firms investment scheme.



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NHS computer plans face opposition from doctors and unions

by Kevan Pearson

THE Korner Committee on automating the National Health Service is expected to recommend widespread use of computers when it reports to the Cabinet next month. But the eventual shape of NHS computerisation could be very different from that envisaged by Korner.

The Department of Health and Social Security has recently set up a new policy committee to examine the issue in a wider perspective than the Korner Committee, which only looked at management information.

The new committee will also look at the contentious areas of medical and clinical records.

It is in these areas that the NHS could run into serious opposition from doctors and unions involved in the Health Service. The system would come within the ambit of the government's proposed data protection legislation.

The White Paper outlining data protection proposals has been roundly criticised, and does not meet the criteria for data protection demanded by the British Medical Association.

Dr John Dawson, BMA spokesman on computers and privacy, said: "The White Paper is not good enough. It could be modified to become effective, but it needs substantial improvements."

He added that doctors should not let information out of their control unless security and confidentiality could be guaranteed. "Computerisation in the Health Service must take place within an adequate framework of data protection."

Several pilot projects have already been set up as part of the Korner Committee's work. But these have run into trouble with the Health Service unions, particularly the Confederation of Health Service Employees, the National Association of Local Government Officers, and the Royal College of Nurses.

At the pilot project in Manchester the unions refused to cooperate with the scheme. According to Eric Cooper, North-western regional secretary for COHSE, the data on the computer included information about Health Service workers' union activities, and the system was housed on a computer outside the control of the Regional Health Authority.

Both complaints have been dealt with, and the unions are offering partial co-operation, but are withholding their full support until consultation about what the systems will contain, and how it will be used, has taken place.

The unions are also determined that computerisation should not mean further cutbacks in Health Service manning levels.

● The Confederation of British Industry has taken a markedly different line from most other parties in its comments on the government's White Paper on data protection. The CBI says the proposals go too far, and should be simplified. It argues that there is no need for every computer system to be registered. Registration should only be compulsory on those which either carry sensitive data, or which cover a large body of information and people. It adds that all systems should be covered by the general principles of operation for computer systems, and that it should be an offence not to comply.

The Korner Committee will look at the contentious areas of medical and clinical records.

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DEC UNIBUS ARE DIGITAL EQUIPMENT CORPORATION TRADE MARKS

CONN ... *"Even the Americans are envious."*

CCTA soon to publish guidelines on office automation systems

by Donald Kennett

CENTRAL Computer and Telecommunications Agency new guidelines on installing and evaluating office automation systems will emerge in time for the next round of government department trial projects.

Its conclusions are being circulated for comment by participants in preparation for publication in the next few months.

Plans for three more trials have been announced, and discussions are being held with a view to further trials in government departments.

"We have the greatest number of co-ordinated projects going on anywhere – even the Americans are envious," said future applications team leader Eileen Conn. "There is no substitute for their own experience for departments developing office automation policies."

The CCTA, which vets and advises on public sector system purchases, installed a 12-workstation Zynar Cluster One local network in its own offices last year and a seven-workstation Xionics Xibus integrated office system in the Cabinet Office three months ago.

The latest order for a trial system, placed earlier this month, went to Systime for a dual processor 6400 series system with 14 workstations to be installed at the DHSS in central London.

Last month, the Ministry of Defence ordered a system from Datapoint consisting of an Arcfile 6600 processor, a network controller and 10 8601 application processors.

These two systems are to be used in one-year trial projects starting in the next two months, while Rediffusion is to install a 20-workstation system at the Department of Industry for a two-year trial starting in the autumn. All the systems will provide similar facilities designed to support the activities of senior officials, such as messaging, text processing, document storage and retrieval and a diary. They cost from £70,000 to £90,000 each, to which software and maintenance costs must be added.

The next round of trials, expected to start soon, will serve the "middle management" levels of the Civil Service, initially in central offices but with the intention of expanding them to regional offices – where the "bread and butter" work is done – as soon as possible.

Various reports are to come out of the trials at irregular intervals. Next year, the effect of office automation on staffing levels and on the quality of decision making is expected to become evident. The first report, now being prepared deals with the installation process itself. It recommends appointing a full-time system manager to provide a link with suppliers and to support users.

It also advocates off-the-job training to make sure users master the system properly, getting top management committed to the project.

Spectrum hit by delivery delays

by Nicholas Enticknap

SOME customers of Sinclair's new ZX Spectrum home computer will have to wait up to six weeks longer than they expected before their machine arrives. The company says the delay is caused by an unexpectedly high rejection rate from the stringent quality control checks applied at the factory.

A spokesman said the company had taken steps to solve the problems, and hoped this week to reach its initial production target of 20,000 units a month.

The Spectrum has proved a hit from the start. Orders received stand at 20,000 since the system was announced in mid-April, with new orders coming in at a rate of 1,000 a day.

Customers who are to experience a delay in delivery are being informed by a standard letter from the company's customer service department.

But in at least one case – an order for a Spectrum by a reporter in this office – the Spectrum arrived the day before the letter notifying the delay.

Newcomer to handprint data entry

by Nicholas Enticknap

HOT on the heels of the departure of Image Data from the handprint data entry market comes a new company eager to try its luck. Cadre Systems of Cirencester introduced both itself and its first product, the Inforite terminal, in London last week.

Inforite differs from other systems on the market in a number of respects. Perhaps most significantly it can be used as a peripheral with Apple II personal computers. It can also be attached to Xerox 820 and Sord M23 systems.

Inforite consists of an entry pad containing a Z80 micro, plus a detached 2 line by 32 character display. The pad is A4 size, and can accept diagrams and signatures as well as handprint. A keypad is incorporated in the entry pad for correction of erroneous characters, initiation of commands and for calculations.

The processor is configured with 64K RAM, up to 48K ROM and, optionally, up to 48 Kbytes of battery-backed CMOS RAM. Data can be stored in the memory for subsequent transmission to a host computer via an RS232C/V24 interface operable at data rates selectable from 300 to 9600 baud.

Prices quoted are £950 for a basic unit, or £1,200 when supplied with the CMOS RAM.

The handprint recognition algorithms used by Inforite were originally developed at the National Physical Laboratory, then further developed by Moore Corporation of Canada. Cadre has brought the technology to the production engineering stage under a licensing agreement with Moore.

Microsoft into Europe

by Claire Gooding

MAJOR US microsoftware publisher Microsoft is to attack the European market directly.

Microsoft, which has previously dealt through its European agent Vector Microsoft, has set up its own headquarters in Berkhamstead, to offer a higher level of support to European OEMs.

Once known primarily for its micro languages such as Cobol-80, Basic-80 and Pascal, Microsoft has moved into operating systems and is ready to take on a much larger market. Its MS DOS is already the "native" operating system on many 16-bit machines, including the IBM Personal Computer, and it is also available on Wang, DEC, Hitachi, NEC and Matsushita kit.

Harris upgrades H800 supermini

TWO upgraded versions of the Harris H800 supermini have been announced by the Slough-based Information Systems International division. The H800-1A and 1B maintain compatibility with the H range of machines but offer mainstore sizes of up to 12 Mbytes, putting them in direct competition with mainframe computers.

SALES BRIEF

Aregon third big videotex deal in US

AREGON International has secured its third major videotex sale in the US with Texas-based HVC Corporation's decision to use its IVS-3 system to serve 10,000 business and domestic users in the Dallas area.

The system is to be installed on a DEC VAX 11/780 located in HVC corporate headquarters and is due to be installed this month.

Hotel first

PHILIPS Business Systems has supplied one of its EBX 8000 digital switchboards to the Dorchester Hotel in London. It is linked to two Philips computers, a P851 mini and a P7000 hotel system, forming the first integrated hotel system in the UK. One of the features of the new system will be the automatic entry of phone charges on customers' bills.

Society terminal

ERICSSON Information Systems has won an order from the Britannia Building Society for £1.5 million worth of front counter terminals to equip all 212 UK branches. Britannia was one of the first UK building societies to provide online passbook updating when it installed Ericsson (then Datasaab) equipment in 49 branches in 1976.

£750,000 order

LINFOOD cash and carry, one of the UK's largest wholesalers, has gone to NCR for £750,000 worth of its 2140 point of sale terminals. The devices will be installed in Linfood's 95 depots in England and Wales, with the larger depots having Europe's first consolidated 2140 system, with master and satellite terminals.

Airline boost

RICKMANSWORTH-based Case has won a £170,000 order from British Airways for the replacement of modems used in the airline's online seat reservation system. The existing 9600 bits-per-second modems are giving way to the first commercially-available 14400 bits-per-second devices.

Through the wall

PHILIPS has won a £150,000 order to supply the first seven of Leicester Building Society's through-the-wall cash dispensers starting this autumn. Philips' Microbank was chosen for its keyboard design, screen format, small size and flexible software.

More Sun

SUN Life Assurance is to extend the network between its head office and area offices to cover branch offices too. Starting this month, it is installing £160,000 worth of Racal-Milgo 9,600 and 4,800 bit per second modems controlled by a System 185 network management system, £230,000 worth of Ferranti PT7 programmable terminals and controllers, and £180,000 worth of Diablo 1650 daisywheel printers from Zygal Dynamics.

In the news

SURRIDGE Dawson, the UK's third largest newspaper wholesaler, has ordered 41 DEC 136-based News-Key systems from Nottingham systems house Computer Systems and Products. The deal, worth over £700,000, will be used to handle customer, publications and publisher files at Surridge Dawson's branches, and is scheduled for completion in 1983.

Super for France

FRENCH government has bought its second supercomputer from Cray Research of Minneapolis. Worth $11.4 million, the two-million word Cray-1S/2300 is the first installation in a French government scientific research ... this autumn.

Broker system 'could boost Euronet to one million subscribers'

by Jack Gee

INTRODUCTION of a brokerage system for Europe's databanks could boost the present 3,000 subscribers of the Euronet packet switching network to one million, André Mauperon, a Common Market data processing expert, said in Brussels last week.

Mauperon, who is adviser to the European Commission's Directorate-General for Information Marketing and Innovation, said: "One million is not an unrealistic figure for a population of 260 million. But Euronet is a rich man's club composed of industrial firms, government administrations and a few universities."

He was addressing a seminar organised by CII-Honeywell Bull.

He added: "A rich, untapped market exists among small and medium-sized businesses, the liberal professions and farming and trading co-operatives. But it will need brokers ready to do research for occasional clients who do not require regular service involving the purchase of a terminal and keyboard.

"The software brokerage business is doing well in the US and could have a flourishing future in Europe as well."

Mauperon predicted a prosperous future for small specialised databanks designed for small companies. At present Euronet offers access to 300 databanks.

He also called for a reduction of the 36 host centres operating within Euronet and pointed out that the US manages very well with only seven.

Mauperon said customers were prepared to pay more for specialised software services now that the prices of terminals and keyboards were dropping. He also urged European governments to reduce intervention in the operation of databanks and to allow these to develop in a commercial manner.

He added: "The way to achieve quality is though loyal competition. The Americans are continually accusing Euronet of conducting protective practices."

Euronet, which was put into service in 1980, now covers ten countries. Spreading beyond its Common Market borders, the network is being extended to cover Switzerland, Sweden, Finland (which is to be connected within a few weeks) Austria (which will join before the end of 1982) and Spain.

Plessey launches multi user CP/M micro

by Nicholas Enticknap

PLESSEY Microsystems will shortly announce a multi-user CP/M-based microcomputer system for OEM customers and large end users. The first production machines have been shipped on a test marketing basis in the past few weeks.

The system, which has not yet been formally named but is referred to internally by the type number 19/6, supports from six to 12 users. Each has its own dedicated 64K Z80 processor, with two CPUs mounted on each card slotted into the Intel Multibus.

The users share a common database stored on 35 or 70 Mbyte Winchester discs. The discs are bought in from Priam, and are interfaced by controllers bought in from Xylogics. These controllers incorporate AMD's 16-bit bit slice micro, and have full sector buffering, implied seek and a built-in command chaining option.

The choice of the eight-bit Z80 as the basic building block might seem surprising in the light of the concerted rush to bring 16-bit systems to the personal computer market, but Plessey feels it is necessary.

Users of the 19/6 will be able to use all the wealth of applications software developed for use under CP/M, and Plessey is also producing its own implementation of CP/Net.

Tymshare to provide BP network

by Donald Kennett

BRITISH PETROLEUM has gone to Tymshare for a packet switched data network to link five major sites in the UK. They will have access to BP's Univac mainframes and other computers.

BPnet will use 27 Tymnet Engines running Tymshare's Isis internally switched interface system software. It will support IBM and Univac batch and interactive protocols as well as gateways to other private or public networks.

The network is to go into service late this year and be completed early next year.

Worth £1.7 million, the contract is Tymshare's seventh network sale outside the US.

MAURICE WILKES .... a celebrated UK computing pioneer.

In father's footsteps

by Nicholas Enticknap

A FAMOUS name has emerged once again in the computer industry. Anthony Wilkes, 32-year-old son of Maurice, has joined micro company Oxford Computer Systems after completing his exams at Manchester University.

Maurice Wilkes, who retired from Cambridge University in 1980, is one of Britain's most celebrated computer pioneers, with a host of computing achievements and distinctions to his credit. He is perhaps best known as the leader of the team which developed EDSAC at Cambridge after the war.

EDSAC ran its first program in 1949, and became the second British electronic digital computer, following the Manchester University Mark I the previous year. EDSAC also formed the basis of the design of the LEO, the first computer designed specifically for business data processing.

Anthony Wilkes looks set fair to follow in father's footsteps. He has already designed the Petspeed Basic compiler for Commodore micros, which is sold by Oxford Computer Systems. His first task in his full-time position with the company will be to produce a Mark II version for the new Commodore models.

Peachtree export drive

by Nicholas Enticknap

PEACHTREE Software International, MSA's microcomputer software operation, has announced plans for an export drive of its CIS Cobol applications packages in Japan. The company is looking for sales of £10 million over the next five years, and has appointed a Japanese agent, Micro Software Associates.

Micro Software Associates will be responsible for the conversion of Peachtree software into Japanese, and will also handle commercial negotiations with local hardware manufacturers. The company has a network of over 100 Japanese dealers in micro systems and products.

The first products to be exported under the scheme will be the CIS Cobol range of business management systems.

● Peachtree has just moved to new premises at 43/53 Moorbridge Road, Maidenhead. Telephone 0628 71011.

NEWS BRIEF

Free advice service

SMALL manufacturing companies are to get a free advice service to assist with technical problems. The government has put up £2.2 million to fund the Small Firms Technical Enquiry Service, to be run by the Production Engineering Research Association at Melton Mowbray.

Advice on computers is seen as part of solving the bigger difficulties likely to be encountered.

Bureau buy

MAYNE NICKLESS, the Nottingham-based bureau services group has bought its second bureau, Parr Computer Services of Nottingham. Last year the company acquired Inter-City Computers, a Leicester bureau. It also runs Compute-Pay, a computerised payroll service established in 1979.

Japanese swap

SPERRY Univac has signed an agreement with Japanese electronics giant Mitsubishi Electric to develop information processing equipment. There will be exchange of personnel and technical information to strengthen each company in its own market.

Irish Ombudsman

A SUBMISSION has been made to the Irish government calling for a Data Protection Agency. The Irish Computer Society has suggested the agency to act as an Ombudsman where public concern or protection was needed on matters such as the transfer of information.

WP venture

A COMPLETE word processing service is on offer from Word People Ltd, a new company set up by former Wang UK employee Wendy Hart with backing from the Industrial and Commercial Finance Corporation.

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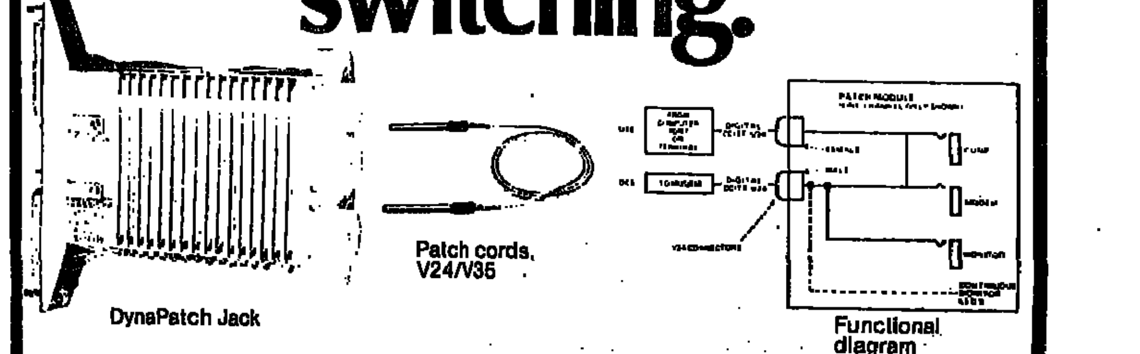

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System generator from Burroughs 'will open up new market areas'

by Maggie McLening

AFTER a two-year wait, Burroughs has finally rewarded its UK users with a system generator.

The Logic and Information Network Compiler (Linc) system was written in New Zealand, and was run in test user sites there before being launched in Europe.

"Because this is such a crucial product for us, we wanted to ensure that it was a mature package, and that we wouldn't have to pioneer it," explained Alistair Taylor, hardware products marketing manager.

In 1980, Burroughs was approached by Datalog Management Systems in Hampshire to see if it was interested in an online development tool, DPS, which Datalog was developing to run Burroughs hardware. Firmly declining, Burroughs said it was about to launch something similar of its own shortly, but nothing appeared in the UK.

Release of Linc has been timed to coincide with that of The Business Partner, a complete hardware and software package designed to support business information systems. Although it is currently available only on the B1000 range, it is due to be implemented on other machines of varying sizes by early 1983.

Written in Cobol, Linc generates a complete DMS II relational database design from the input data, including entry facilities, maintenance and deletion. It also provides reporting and ad hoc enquiry facilities through its definition language, LDL.

Burroughs claims that Linc will enable users to develop systems in a fraction of the time normally taken, quoting 90% reduction in development time for communications networking systems. A New Zealand user has quoted comparison figures taken from a spare parts system written by his company, which has 17,600 Cobol statements being rewritten in 1,518 Linc statements.

Burroughs claims that one Linc statement is equivalent to between eight and ten in Cobol.

According to Alan Payne, Linc product manager, Burroughs expects it to break new ground for the company.

"It will open up new market areas for us, because there is no conversion involved for non-Burroughs users buying a system. We are looking for software houses to get behind Linc-produced applications to enhance this line of business," he said.

Discounts will be offered on hardware to software houses adopting the product, but Taylor expects that Burroughs-oriented companies will probably have to take it anyway to make their timescales more competitive.

"There are a lot of people around with programming aids, but there is nothing else on the market that does all this", claimed Taylor.

"The major benefit is really in prototyping", explained Payne. "The designer can find out immediately if the system will do the job, and Linc eliminates all the uncertainty."

Three orders have been placed for the £34,000 system so far in the UK.

PALMER . . . "System will help to handle 60,000 bookings a day".

Holiday group designs own mainframe-based viewdata network

by Donald Kennett

AN unusually high throughput requirement persuaded Thomson Holidays to design its own mainframe-based viewdata network for its online reservations system.

The company ran a two-year trial with 66 travel agents accessing Thomson's mainframe database via a Rediffusion private viewdata system. But in planning to boost the system to serve 2,000 agents this year and over 4,500 eventually, Thomson decided a mainframe was necessary to handle the volume of traffic and run the three-gigabyte reservations database.

Thomson brought forward the hardware upgrade it was soon going to need anyway – from a pair of IBM 370/158s to a pair of Amdahl 470V/7Bs – and placed a £100,000 development contract with Taplow-based micro systems house, Micro Scope for a variation of Micro Scope's multiple Z80-based network controller.

Commercial director Colin Palmer says the system, called Top (Thomson Open-line Programme), is due to go live during the peak booking period in September and October, supplementing the 200 telephones manned by agent support staff in London and 10 regional offices. It will help to handle an expected 60,000 bookings a day.

It will also help at the other peak traffic period early in the summer when the volume is generated by the search for alternatives as holiday packages become fully booked. One benefit of viewdata discovered during the trial was that clients believed a holiday was fully booked after seeing it on the screen, whereas after hearing a telephone message from Thomsons relayed by the agent they often tried to book the same holiday through several other agents.

Modifications carried out on the company's existing TRACS reservation system to support access by travel agents include an enquiry program which pulls up to 49 pages of alternative holidays (three or four to the page) from the database in response to selection criteria including price bracket, number of people, type of holiday, area and point of departure.

Cabinet Office voice option makes debut at exhibition

by Donald Kennett

MASTER SYSTEMS, the main distributor for Xionics' Xibus office automation system, demonstrated its voice message option for the first time at the Office Automation Show in London last week. The option is to be installed on the Xibus system at the Cabinet Office in the next two months.

The Xibus mark two VDU has a telephone handset and three extra control buttons for the voice function. It allows voice messages up to 21 seconds long to be stored digitally. They can be sent on their own, appended to documents or text messages, or chained together as dictation.

Wang also demonstrated voice messaging at the show, using its Alliance mini-based information system. Both systems display a row of blobs on the VDU at one second intervals while the message is being recorded and then follow along the row with a cursor when it is being played back.

Plessey exhibited the Ibis integrated business information system which it launched the previous week. A cluster of terminals around a CDSS-1 digital telephone exchange for less than 100 lines was connected to a 200-line PDX digital exchange at the Business Efficiency Exhibition in Earls Court on the other side of London.

Launched in 1978, the PDX is now claimed to have 40% of the UK market with 100,000 extensions installed.

Devices attached to the exchanges included the mark II version of the £520 Vutel telephone handset with a five-inch monochrome viewdata screen built in. The mark II has printer and keyboard sockets added and will cost a little more when it is released shortly following British Telecom approval. The mark I is already available through BT as a special telephone.

Plenty of interest in the Plessey Ibis system at the London show.

Fortune Systems' one-man UK subsidiary in the form of Bill Macpherson was out looking for distributors, OEMs and vertical market software houses to take on the £4,416 Fortune 32:16 68000-based microcomputer with its reverse-engineered Wang OIS word processing package running under Unix. Accounting packages including payroll, inventory control and the ledgers are on the way, to take their places with Microsoft Multiplan, an enhanced version of Visicalc which enables information to be passed between spreadsheets.

Ethernet and X25 interfaces are due in the first quarter of next year, along with an intelligent controller for links to satellites and IBM mainframes.

Macpherson is also looking for third party maintenance companies.

DEC, Intel, Tektronix adopt graphics standards

by Philip Hunter

A SHOT in the arm for writers of graphics software has come with the adoption of two new graphics standards by three large US corporations. The standards involve address methods for creation and transmission of computer graphics images.

Digital Equipment, Intel and Tektronix, which are adopting the standards, will incorporate them into all future products. The effect will be to increase portability and enlarge the market for software written to the standards.

A joint statement on the standards was made by the companies today (Thursday). It follows internal research on the standards by all three, and representation by them on the technical committees of ANSI, the American National Standards Institute.

The first of the two standards is the North American Presentation Level Protocol Syntax (NAPLS) developed by the Canadian department of communication. This is a communications protocol for the transmission of graphics between different manufacturers' hardware. This protocol is being considered for adoption by ANSI.

The other standard being adopted is VDI, Virtual Device Interface, which is being developed by a technical committee of ANSI. It will provide standard access to graphics functions, with a resulting improvement in portability of graphics software.

Other companies are being encouraged to adopt the standards.

NEWS BRIEF

Tandem to double its German plant

NONSTOP system manufacturer Tandem Computers is to more than double the capacity of its plant at Neufahrn, near Munich.

Originally opened in 1980, the building is to be enlarged to take a workforce of 200, and provide an increase in shipments from under $40 million to $200 million per year. The extension should be ready for production by 1984.

DEC services

TWO user support services have been announced by Digital Equipment. DECstart offers on-site assistance, workshop training and hands-on experience to familiarise staff quickly with a new system. Network Product Services provides technical expertise to troubleshoot network problems.

Geest agreement

GEEST Computer Services has signed an agreement with ICL under which it will market the ICL DRS 20 range. An initial contract worth £120,000 has been signed.

Software deal

THROUGH its Trader Point Scheme, ICL is to market Holland Automation's microcomputer software throughout Europe and US with its new personal computer. Holland Automation, a European microcomputer systems house, specialises in processor-independent software. The deal with ICL brings the number of micros running its software to 20.

Sony profits drop

JAPANESE consumer electronics manufacturer Sony has reported a drop in half-year profits to the end of April by 6.3% to $130 million despite increased turnover by 7.1% to $2.18 billion.

Revenue up 68%

CULLINANE Database Systems has announced a 68% revenue increase for the year ended April 1982 from $29.4 million to $49 million. Net income for the year was $7.6 million.

First fruits

A TWO-CHIP set designed to implement Ethernet and other baseband local area networks is to be made generally available by Fujitsu in the fourth quarter of the year. The chips were designed by Ungermann-Bass for use in its own Net/One Ethernet-compatible systems from next month and are the first fruits of an agreement between the two companies which is expected to cover a succession of semiconductor products for the local network market.

5,000 activities

A MULTI-USER project management system for CP/M and MP/M based desk-top microcomputers has been launched by Albion Computer Company, the computer products subsidiary of the C Group. Jenni uses the same network calculation method as mainframe Pert systems, and caters for up to 5,000 activities.

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IMLAY . . . "You can sleep with an elephant until it rolls over."

'IBM is an ally – at the moment'

by Boris Sedacca

"YOU can sleep with an elephant until it rolls over." This is how the world's largest software house regards its relationship with the world's largest computer manufacturer.

John Imlay, chairman of Management Science America, and long-time bedfellow of IBM in the market for applications software, says of IBM: "Right now, IBM is an ally rather than an enemy. But I emphasise 'right now.'

"At the moment IBM's software is in the systems area whereas we concentrate on applications software," he said.

Imlay is an influential member of the Association of Data Processing Service Organisations, the US counterpart to the UK Computing Services Association. But Adapso is somewhat bigger, more aggressive and exclusive.

Adapso and the companies whose interests it represents are a little jittery about IBM's planned re-entry into services now that the US Justice Department has stopped breathing down its neck.

"When we first heard of IBM's intentions in the services industry, we debated whether to sue or not, but given Reagan's interest in fostering 'free and fair' competition, we decided that this course of action was fruitless.

"Anyway, IBM is not in direct competition with us, so we decided not to sue but to keep an eye on the company, and it has been pretty open about what it is doing.

"We are more concerned about AT&T now that it has divested itself of its low-yield telephone companies. There is a patent an hour coming out of Bell Labs and it has Unix," he said.

Package firms see business boom in changes to payroll systems

IT's an ill wind of legislative change that blows nobody some good business, and the Social Security and Housing Benefits Bill due to be passed in July looks like being no exception.

At first sight, amendments to payroll systems to cater for the Statutory Sick Pay (SSP) requirements may not seem drastic, but they could render obsolete many microcomputer-based systems without capacity for expansion.

Widespread reassessment of existing systems, however, coupled with the timescales involved, are bound to generate an upsurge in business for the package suppliers.

Under SSP regulations to be implemented by April 6, 1983, when the Bill becomes law, sick pay will be calculated on an employee's average earnings over the previous eight weeks. Recording information in this way will mean enforced file expansion for many systems that only keep a total of pay to date. Additionally, periods of sickness will be linked to determine starting dates for payment, which means a much closer interface with personnel systems, whether manual or computerised.

According to Peterborough Software, whose leading payroll package Unipay has about 600 users in the UK, most employers are waiting until the last minute before worrying about SSP.

"Although a wave of new interest has started, many companies are taking a 'head in the sand' attitude", said Tony Bews, general marketing manager of Peterborough Software. "I don't think they realise just how determined the government is on this issue."

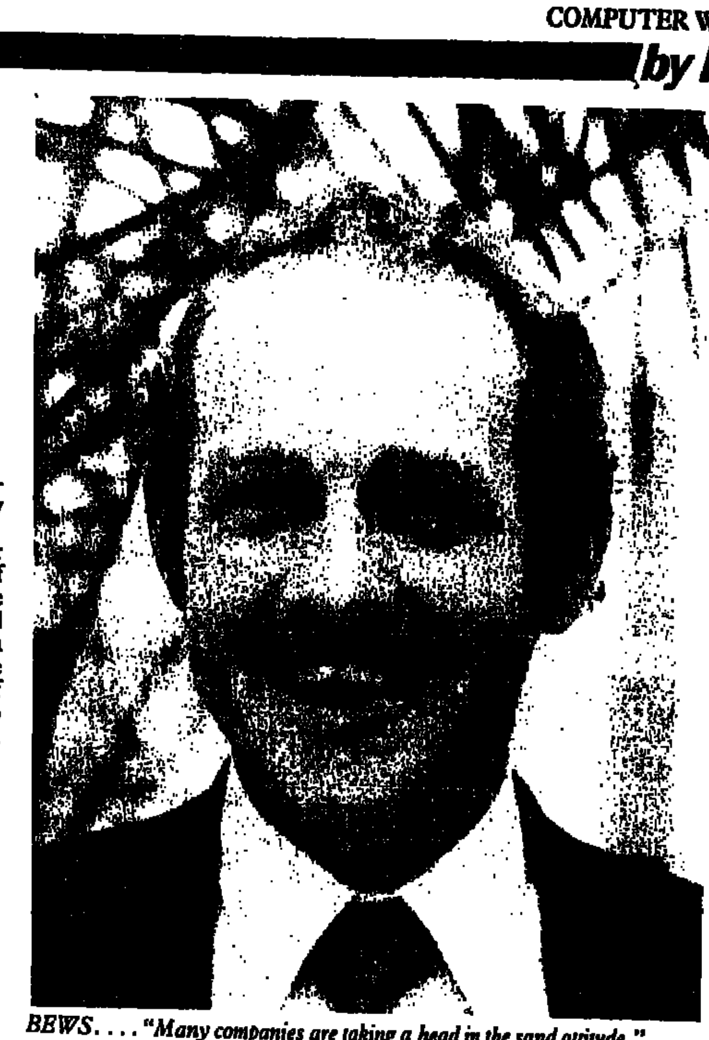
Facilities to cope with SSP already exist within Unipay, and because it is closely integrated with the Unipersonnel system, cross-referencing on spells of illness will be possible online. It only remains for users to specify or re-define code meanings to be able to go live immediately.

"In real terms, the new systems must be up and running by about Christmas, because of the eight-week run-in," Bews pointed out.

Peterborough is looking at other areas of potential expansion. Growing popularity of program and report generators has made the company consider releasing its own, which would be a more general version of the one currently sold within the Unipay system.

"Over the next three or four months, I have the task of seeing if we can take advantage of this type of product, either developed through the company or as a separate system. Through the years we have built up a lot of knowledge, and now is the time to take advantage of it", explained Bews.

● Changes to sickness pay and benefit rules which will affect computerised payroll systems are scheduled to be implemented in April 1983. A report in our June 3 issue may have suggested the changes had to be made by July of this year. Guidelines outlining the changes will be published by the Department of Health and Social Security next month.



BEWS. . . . "Many companies are taking a head in the sand attitude."

Zilog brings word processing to System 8000

by Claire Gooding

ZILOG has introduced a sophisticated word processing function to its System 8000. The Uniplex package builds on the facilities already provided by the Unix operating system on which Zilog based the Z8000 OS Zeus.

Although Unix is a popular system because of the facilities it provides to programmers, it is not the easiest of OSs for end users. Zilog has tried to overcome this problem by adopting a word processing package written by a UK company, Redwood.

The system works on menus which can be defined by the user himself. They can be configured to use all or some of the Unix facilities so that users have available the vast variety of Unix features without having to be familiar with the specific "driving instructions".

Effectively the Uniplex software eliminates the need for inside knowledge.

The Uniplex package is available now at a one-off price of £995.

SOFTWARE BRIEF

Minister for seminar

A PUBLIC seminar has been organised by the Computing Services Association at which Kenneth Baker, Minister for Information Technology, will explain the objectives of the revitalised Software Products Scheme, and outline procedures for companies applying for government grants.

Scheduled for next Tuesday, June 29, at the Dorchester Hotel, London the seminar will include speakers from the CSA, NCC, and Alistair MacDonald of the IT Division of the Department of Industry. Reservation of places is through the CSA.

Direct labour

ORDERS for direct labour organisation systems, written to Chartered Institute of Public Finance and Accountancy (CIPFA) specifications, are now coming in fast, after a slow start. CMC now has 21 orders from local authorities, ICL has at least as many, and NCR has five for its NCR Direct system, with others in advanced negotiation.

Legal education

THE importance of computer and information technology in legal education is to be examined at a seminar in Stoke-on-Trent, on June 30 and July 1. It is jointly organised by the School of Law at Newcastle-upon-Tyne Polytechnic and the Department of Business and Legal Studies of North Staffordshire Polytechnic.

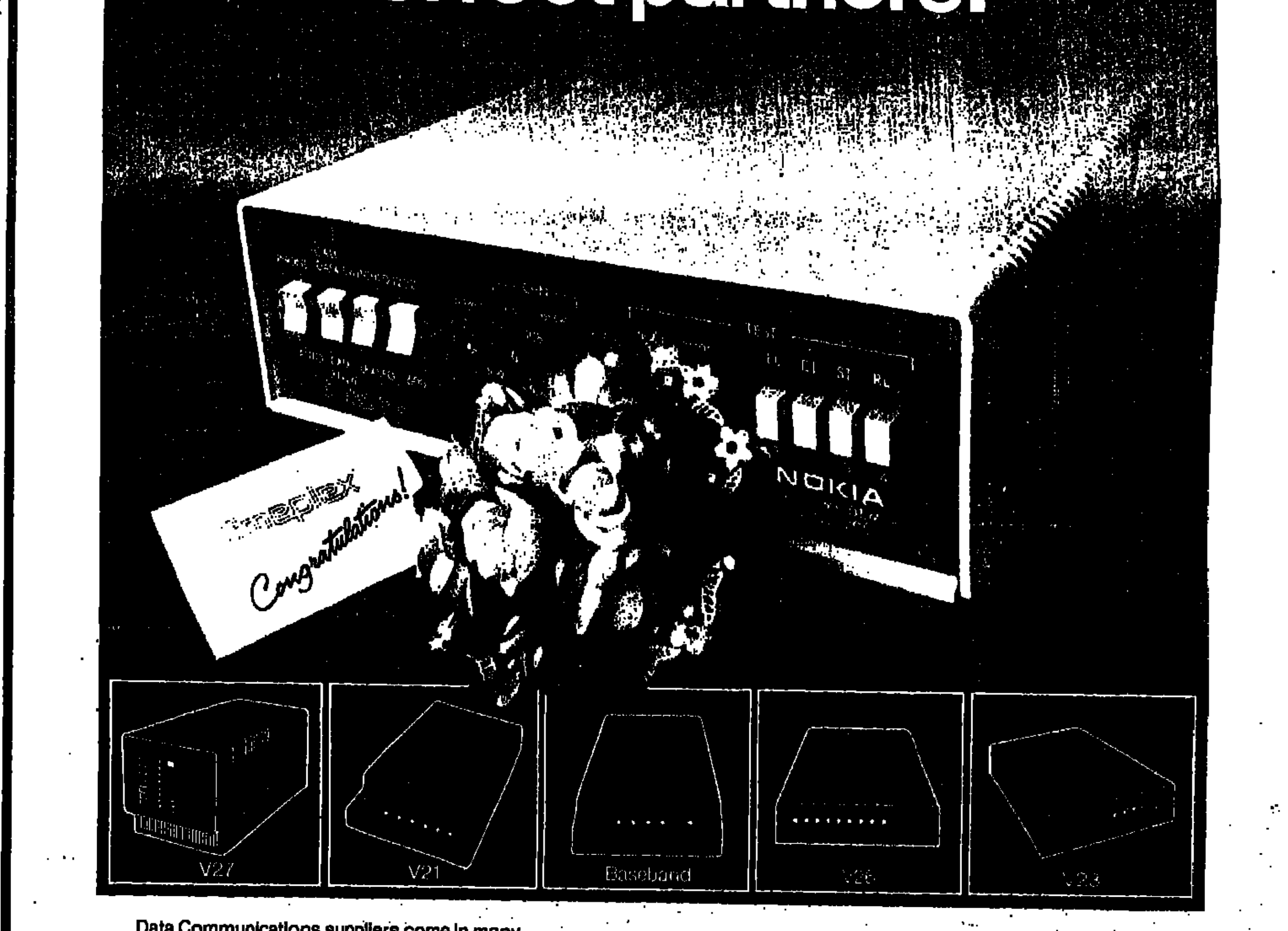
Screen tool

HOLBORN-BASED Delta Software Tools has launched an interactive screen definition tool for its Delta Development system. Available on a wide range of machines, from a minicomputer to IBM's IMS/DC with MFS, Delta/Screen is suitable for any Cobol or PL/I application.

Do-it-yourself

A "DIY" package to enable DEC PDP-11 and VAX users to buy the Rapid Programming Language (RPL) and Rapid Query Language (RQL) at half the list price, has been launched by Filetab Support Services.

Perfect partners!



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COMPANY NEWS

City reacts favourably to ICL results

WITH the ICL results now moderately digested, the various City analysts are beginning to re-think their forecasts of the company's year-end profits.

Generally, the reaction has been favourable, most attention focusing on the ICL balance sheet. It has been much improved by the addition of Computer Leasing Ltd's assets of £28 million.

Neil Barton of Manchester brokers Henry Cooke Lumsden says that the balance sheet is recovering fast, and by September 1982 borrowings, other than deferred debt, could be less than shareholders' funds.

As a measure of the net worth of a company the balance sheet has a direct bearing on the borrowing power and credit-worthiness of a corporation. Currently ICL's debt exceeds the company's shareholders' funds by £56 million. Without a government guarantee banks would be unlikely to lend under these circumstances.

Barton has scaled down his estimates of ICL's profit for this financial year to £20 million, from his previous forecast of £25 million.

IBM trails inflation

AT a special briefing in London last week, IBM released further details of its UK finances.

Despite an £8 million rise in profits, IBM UK's profit performance is still trailing inflation in the UK. Profit for 1981 was £161 million, a 5.2% rise on 1980's £153 million.

With inflation in the UK running between 10% and 12% last year, this leaves IBM's profit growth behind that of the US parent, and well down on the Japanese subsidiary's 20%.

However, the company has made a massive capital investment of £118 million in plant and facilities in the UK and sent back £56 million in dividends to the parent company, both of which will have helped to keep profit figures down.

Firms needing funds met finance companies at the CW/Barclays conference

Weedon of Keen.

Chairman Wood of BTG.

Entrepreneur Melchor.

How to set up in business—without losing your shirt

by Kevin Cahill

A CONFERENCE ends when the hotel switches off the lights, and the shutters come down.

Or does it?

Despite a power failure, which limited the light for a while, the Computer Weekly/Barclays Bank First Time Financing conference last week marked a beginning rather than an ending.

A straw poll by the final speaker, Ron Weedon, chairman of Keen Computers, showed that about 30% of the delegates were about to start up their own companies. The same quick poll revealed that about 50% of those present were running their own businesses already.

The finance industry, including Barclays' management, was represented, and one of the key conference objectives, to bring together those seeking finance and those ready to provide it, seemed likely to be met.

Time will tell whether the meetings resulted in positive financing. Meanwhile, both parties learned a great deal from each other.

Lunchtime guest speaker Jack Melchor, one of the best-known American venture capitalists, described his trade as a little like making love to an elephant. If you succeeded you had to wait a long time for the results, if you failed you got trampled to death.

Melchor, a physics PhD, got into the business of venture finance through the accidental medium of a drinking club's $100-a-month investment pool, which he managed. He explained that the objective for a venture capitalist is the creation of wealth, and with that wealth, freedom of action.

Melchor talked about the Anglo-American fund which he manages on behalf of the National Enterprise Board (British Technology Group), and which has as one of its purposes the creation of employment in the North-East of England. The pursuit of profit by American venture capitalists in the Bay area of San Francisco alone led to the creation of between 600,000 and 1 million jobs, and over 100 millionaires within 20 miles of Melchor's office.

Weedon amplified a theme of Melchor's when he talked of the need for the entrepreneur to have a big enough stake in the business that it hurt if the business went wrong, but would not prove fatal to home and family.

Indeed, the theme of so structuring the start-up finance that family homes were not put at risk by a business failure was a constant one with venture capitalists and company delegates during question time.

Despite the apparent problem this creates for Barclays in relation to some of its traditional lending, Ian Lovett, one of the sponsor bank's speakers, was able to announce that Barclays would be relaunching its Business Start Loan scheme next week.

The scheme, one of the most attractive loan propositions on offer by any bank because it requires no personal guarantees, no interest repayments other than a royalty on sales, and no capital repayments for five years, was put into suspense while Barclays reviewed its initial experience with what is basically high-risk, venture type lending.

The bank seems to have decided that, despite some failures, this form of lending represents a useful compromise between secured lending, and direct equity investment.

There also appeared to be a wide degree of consensus among the finance speakers upon the need for equity, that is, pure invested cash in the form of shares purchased, in the early stages of a company's existence. John Robertshaw, chairman of United Computers and Technology, said that his organisation was in the business of providing this early equity to small computer companies.

He suggested to the delegates, echoing a theme from last year's Financing Conference, that getting to know the financiers like himself as far in advance of the need for capital as possible was a good idea.

Making the most of the various government schemes for product start-up grants and market launch assistance was a point made by both Dr John Parkes of the DoI and Eddie Bleasdale of Bleasdale Computers.

Bleasdale's company made wide use of the MAP scheme in its early stages, and he recommended the delegates to look carefully at schemes like it, which could help reduce dependence on expensive loans.

John Saunders and other Barclays speakers all laid strong emphasis on the fact that the bank's 14,000 managers all used different approaches to individual lenders.

Naomi Langford Wood, managing director of PME, which started up with a Barclays loan, jokingly confirmed this point by recalling that four Barclays branches had turned her down before one accepted her proposal. She suggested that a good sales pitch based on a professional business plan was an essential part of the successful hunt for start-up capital.

The conference was opened by Rt Hon John McGregor, MP, and chaired by Sir Frederick Wood, chairman of the BTG, and Professor Frank Sumner of Manchester University. Over 120 delegates and guests attended.

'Industry growth will continue'

INDUSTRY watcher John Paterson of stockbrokers Smith Keen Cutler takes the optimistic view that growth in the computer industry will continue at a compound rate of 30% through to 1986.

Paterson, who has just presented his first full review of UK computer companies, with the curious exception of ICL, says that while current investment opportunities remain limited, this should improve throughout the remainder of the decade.

In a summary which precedes his share recommendations, he notes that the market has been affected by established minicomputer makers who have suppressed the development of micros in order to protect their markets.

The new micro conceived companies such as Tandy are pushing hard for the acceptance of powerful micro-based systems. These could replace the current generation of minicomputers, a development which will go hand in hand with distributed data processing.

Paterson suggests that by 1984 the Japanese will have made major inroads into the UK market.

This will come about as a result of the lessening dependence on technical innovation and unique software and increasing market susceptibility to lower prices.

Paterson goes along with the common view that the growth of the micro supplied market will gradually erode the role of bureaux, but he adds an important rider to the effect that there will be opportunities for bureau based suppliers of sophisticated programs running on central processors or databanks.

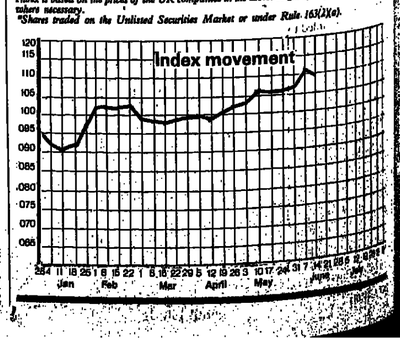
This leaves an important slot for the specialist bureaux like Ralf and Nolan, C & CF and NMW, all of which have reported good results recently.

CW SHARES TABLE

Date 18/6/82 Index 108.30 Change -1.6

Pence 1982 High	Pence 1982 Low	London Stock Exchange Stock	Price	C'nge	$ 1982 High	$ 1982 Low	US Stock	Price	C'ge
186	161	ACT (App Com) (25p)	182	+ 5	29½	18¼	Amdahl	15¼	- ¼
178	150	Sumlock Int. (25p)	178	+ 3	32½	13	Apple Inc	32½	+ ½
29	• 18	B. Sov Kent (25p)	29	+ ½	29	23¼	Auto Data Pro	31¼	- ¼
177	161	Chubb (50p)	168	- 11	37¼	31	Burroughs	31¼	- ¼
54	48	Coke Bangs (25p)	50	- 5	13¼	7¾	Comp Auto	13¼	- ¼
253	233	C.A.R.E. (50p)	253	- 10	15	11¼	Comp Sciences	14¼	- ¼
730	537	Do La Rue (25p)	538	- 17	15½	12¼	Comshare	15¼	- ¼
260	232	Exicl (25p)	235	- 10	40½	32¼	Control Data	40¼	- ¼
770	535	Fexstrd (50p)	715	- 53	30¼	21¾	Cray Research	30¼	- ¼
662	703	Gkid (25p)	810	- 20	34¼	26¾	Data General	33¼	- ¼
67	39	IDL (50p)	67	- 2	46½	13	Datapoint	46½	- ¼
7	3	Kalamazoo (10p)	7	- 1	10¼	6¾	Digidyne	10¼	- ¼
310	243	Kode Int (25p)	267	- 13	87½	67½	Digital Equip	87½	- ¼
315	215	Micro (10p)	290	- 8	79	53¾	Elec Data Sys	78¼	- ¼
305	218	Micromed (25p)	290	- 8	71½	54	Gen Automation	71¼	- ¼
284	218	N'market (1981) (5.0p)	272	- 7	38¼	25	Harris	38¼	- ¼
285	210	Norsk Data	269		35¼	25¾	Hewlett-Packard	35¼	- ¼
378	298	Office & Elect. (25p)	378	+ 16	78	60	Honeywell	78¼	- ¼
520	446	Philips Lamp (£1/0)	503	- 16	72¼	54¼	IBM	72¼	- ¼
488	348	Plessey (50p)	483	- 16	68	57	Intel	68¼	- ¼
67	50	Quantel Auto (10p)	67		23½	16½	Intgrn Inf	23¼	- ¼
430	263	Real Elect (25p)	418	- 18	13¼	9¾	MDB (Malvern)	13¼	- ¼
521	421	Redifusion (25p)	488	- 16	21	15	Micro Applied	20¼	- ¼
488	408	Thorn-EMI (25p)	488	- 16	16¼	10	Microd Assts	16¼	- ¼
80	74	UCST (50p)	78	+ 1	6¼	5¼	Modcomp	6¼	- ¼
		OTHER MARKETS*					Motorola	65¼	- ¼
80	62	Bus Comp (10p)	62		65	50¼	National Semi	65¼	- ¼
557	415	Comp Sec (£1)	481½		20¼	15¾	NCR	20¼	- ¼
152	78	Comtec (CAP) (10p)	178	- 7	35½	25¼	Perkin-Elmer	35¼	- ¼
282	248	Hi Tech (25p)	263		24¼	17¾	Prime	24¼	- ¼
170	122½	Norpak (£1)	139	- ½	31½	22	Raytheon	31¼	- ¼
67	43	Rolfe & Nolan (10p)	67	+ 18	28½	23¼	Signet	28¼	- ¼
170	129	Sagantdue (10p)	170		31	22¼	Storage Optcs	31¼	- ¼
210	180	Star Comp (10p)	210	+ 5	31¼	22¼	Storage Tech	31¼	- ¼
108	96	Trident Comp (10p)	96		37¼	25¼	Sycor	37¼	- ¼
130	78	Zygal Dyn (5p)	100	+ 1	36¾	27	Tandy	36¼	- ¼
131	118	Micro 22 (10p)	118	+ 1	9¾	7½	Telex	9¼	- ¼
							Texas Inst	87¼	- ¼
							Trend Data	87¼	- ¼
							Tymshare	87¼	- ¼
							Wang Lab B	87¼	- ¼
							Xerox	87¼	- ¼

The table shows the closing prices in London on Friday and in America on Thursday. The Dow Index is based on the prices of the UK companies in the table. Highs and Lows have been adjusted where necessary.
**Shares traded on the Unlisted Securities Market or under Rule 163(3)(a).*



More conferences, for regional financing

FOLLOWING the lead given by Computer Weekly at national level, a number of financial institutions are beginning to set up regional financing conferences for computer industry companies seeking finance or financial contacts.

The first of these will be run on July 8 in Reading by stockbrokers Heseltine Moss, which participated in Computer Weekly's financing conference last year and subsequently managed a number of financings in the computer industry.

Heseltine partner Christopher Blunt, who arranged the event, describes the Reading and Newbury area as "Britain's Silicon Valley", containing as it does so many of the country's key computer installations, including DEC's headquarters.

The conference will be addressed by a number of senior financial representatives, and Star Computer's Jack Schumann will talk about the problems and opportunities of a Stock Exchange listing.

The conference will be opened by John Curry of Unitech. Details from Heseltine Moss at London Road, Reading. Tel: 0734 595511.

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London SE1 0JF.

irex

MICRO NEWS

by Nicholas Enticknap

Franklin counter-files against Apple lawsuit

APPLE Computer's differences of opinion with New Jersey newcomer Franklin Computer Corp are boiling up into a serious feud. Apple's decision to file a lawsuit in May against Franklin, which is selling an Apple look-alike, did not deter Franklin from doing its best to cash in on the Applefest exhibition at the beginning of the month, and Franklin has now followed this by filing a countersuit against Apple.

Franklin's case is in two parts. Firstly, it denies that it has infringed any patent or copyright or otherwise violated any law in connection with the manufacture, sale or use of its Ace 100 personal computer.

Secondly, it counter-alleges that Apple has engaged in "anti-competitive and predatory practices" which are illegal under American anti-trust legislation.

Franklin is asking for triple damages amounting to $150 million as well as its legal expenses.

Apple declined to comment on Franklin's allegations, other than to say that the matter was in the hands of its lawyers. Apple UK's marketing director, Stephen Brewer, pointed out that Apple's senior executives have been in England for the past few days and have not therefore been able to study Franklin's allegations.

In denying Apple's allegations, Franklin president Joel Shusterman described one of the patent infringement claims, regarding colour displays, as "quite frivolous," as the Ace 100 does not have colour capabilities.

Shusterman also said that DOS 3.3, the operating system written by Apple and used on the Ace 100, is not protected by patent or copyright.

In its anti-trust counter-claim, Franklin mentions specifically Apple's policy of terminating dealerships with companies which sell by direct mail or telephone contact; other coercive dealing practices; discriminatory licensing practices; and misuse of patents and copyrights.

The lawsuit was the second time in a week that Franklin had given Apple something to think about. Franklin had, not unnaturally, not been invited to Apple's annual Applefest junket in Boston, US, but the company went anyway and used the three models in our picture to promote the Ace 100 to the queues of visitors waiting to enter the auditorium.

The Ace 100 is described by Franklin as being hardware and software compatible with the Apple II. However, the company adds, it has features not found on the Apple II, such as 64 Kbytes of RAM and upper and lower case output.

Brewer of Apple . . . Unable to study the allegations.

Franklin Computer . . . One approach to marketing micros.

280 upgrade plugs in

A LOW-COST method of adding 16-bit software development facilities to 8-bit Z80-based micro systems has been announced by Zilog. It consists of a plug-in upgrade package built around the Z8001 and supplied complete with a set of development tools.

The package is known as the Z8000 Dual-Processor System Upgrade and will be available from distributors next month for about £950.

It comprises a Z8000 circuit board containing a Z8001 with 256 Kbytes of RAM, which plugs directly into the backplane of a Zilog MCZ-1 or PDS 8000 system. It operates in conjunction with the Z80 processor under the control of the R10 operating system.

No system modification is necessary on an MCZ-1/05 system. With MCZ-1/20 and PDS 8000 systems, the user will need to make a minor modification to the RESET line.

The software development tools include a screen editor, an assembler, a symbolic debugger, a Z80 to Z8000 code translater, and interface software between the Z80 and the Z8000. All of it is supplied in source code form.

No-name newcomer

BUSINESS microcomputer pioneer Rair Computers has introduced a new model to supplement its successful Black Box line. The product, which was on show at the National Computer Conference in Houston, is so new that it does not yet have a name.

Other details are similarly scant. Rair has not published any technical data and is just as tight-lipped about its marketing plans.

Industry sources indicate, however, that the new machine is built around the 16-bit Intel 8088 processor.

ICL, which markets Rair's Black Box under the name ICL Personal Computer, admits that discussions with Rair on the new machine are already under way. This raises the interesting prospect of a head-on conflict for market share in this market between ICL and IBM, whose own personal computer is also based on the 8088.

One obvious feature of the new Rair system is its colour graphics facility. Other manufacturers are already pushing colour graphics as a lure to the new class of business computer user, and Rair has joined in right on cue.

But that was about all visitors to the NCC were able to learn. "This thing is so new we don't even have any brochures," said Rair founder and president Mark Potts. "We only just got it to the NCC."

As for the name, the product is known inside Rair as The Cream Machine, but for the longer term readers will have their own opportunity to think up a more colourful one, as the company is planning to run a competition on the subject. With obvious names like Rainbow and Spectrum already snapped up by DEC and Sinclair, Rair may have a long search.

Japan business system

by Robert Parry

MARKETING of Japanese 16-bit microcomputers in the UK received a boost last week with the official release of a business machine complete with proven application software.

Wilkes Computing, based in Bristol, has stocks of the YD8110 from Japan's YE Data for immediate delivery in quantity, with software for word processing, commercial and financial applications provided by software house Peachtree.

The YE Data machines, marketed in Europe by Japanese trading company C. Itoh, are built around the 8086 microprocessor from Intel and start at 128K of RAM. The basic business model, at £3,950, includes twin eight-inch floppy drives manufactured by YE Data and hard disc options are available.

A scientific machine, with an 8087 co-processor to speed up maths processing and 256K RAM as standard, will be shipped from September for £4,950.

Operating system software for the machines comes from Digital Research. Both basic systems include CP/M-86 as standard.

The marketing thrust for the machines is based on reliability.

Seiji Yaskawa, grandson of the parent company's founder and responsible for international marketing, explains the use of eight-inch drives rather than the 5¼-inch units more popular for new microcomputers.

"These are real business systems. Although everybody is going for 5¼-inch Winchesters, we are always aiming at the most reliable, serviceable products." But the next models should use the smaller drives, with YE Data's own floppies and hard discs from "reliable Japanese manufacturers".

Price drop

PRICES in the small disc drive market have tumbled to a new low with the announcement of the Model TM50 floppy by Tandon Corp. The new 250 Kbyte system is priced at a mere $50 for a "mechanics only" version ordered in huge OEM quantities.

The TM50 was one of five new subsystems announced by high flyer Tandon at the NCC in Houston. Its other major feature is its compactness, which allows two units to be installed in a standard 5¼in floppy disc drive housing.

Two of the other systems also set new price minima: the Model TM101 is a one megabyte floppy priced at $260, while the TM102 at $325 has twice that capacity.

The other two new products are both 5¼in fixed disc Winchester type systems.

Summer sale

PRESSURE to maintain sales volumes in the personal computer market in the face of determined apathy from consumers reserving their interest and their spare cash for their summer holidays is leading to some novel marketing expedients.

Following Commodore's plan to offer holidays to purchasers of its business systems, announced last week, Apple is now offering cash discounts for the summer season through its dealer network.

Sample savings quoted by City dealer Personal Computers include £163 off a 48K Apple II, reducing the price to £649. A system with disc drive, controller, video monitor and Visicalc is available for £1,206, a saving of £334.

The cash savings are on offer until July 31.

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MICRO BRIEF

NMOS helps Hitachi to speed up

HITACHI has announced its most powerful 64K dynamic RAM chip yet, with an access time of 120 nanoseconds. The higher speed has been achieved by use of the company's advanced NMOS process in conjunction with a new circuit design.

22-bit addressing

A PROM/ROM module for DEC LSI-11/23 systems featuring 22-bit addressing has been introduced by Californian company MDB Systems. The module, called MLSI-MRV11-C, accepts ROMs of 16K, 32K or 64K bytes.

Forth on AIM

THE Forth language is now available on the Rockwell AIM 65/40 microcomputer development system from RCS Microsystems of Twickenham.

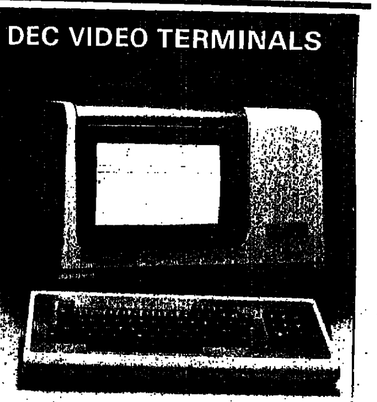
16-bit Pronto

A 16-BIT microcomputer based on the Western Digital Microengine has been introduced in the UK by Pronto Electronics of Chelmsford. Called the Desk-Top Microengine, it runs under the UCSD 111.0 operating system, allowing direct P-code execution of Pascal and Ada programs.

Second agent

HAWKE Electronics has been named as an authorised industrial distributor by DEC, which means it will get a high level of support from DEC for its efforts to sell the company's micros and low-cost systems. Hawke is only the second company to receive this recognition, the other being Rapid Recall.

DEC VIDEO TERMINALS



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SYSTEMS THOUGHTS

The making of a successful systems analyst

Owen Hanson is head of the Centre for Business Systems Analysis at the City University, London. He is also a consultant to a number of companies, including IBM.

THIS time of year, in the universities, is one of leave-taking. Students are sitting examinations at present, and soon many of them will be looking for their first posts in the DP industry, or returning to their jobs.

At City, we run an MSc in business systems analysis and design, a postgraduate diploma in systems analysis, and a BSc in business computing systems. MSc students will spend the next three months working on projects of their own choosing. This year, some will look at systems in hospitals, wholesale butchers and microcomputer companies, while others will examine subjects such as privacy, data security and system conversion from one machine to another.

Our BSc and diploma students arrive from a variety of different backgrounds. Some have already worked in systems, and come to us to get an overall picture of systems analysis as against the single on-the-job view of it they already have. Others have been operators or programmers, and intend to become systems analysts. These all bring with them skills in data processing that are useful to others in the course.

A strong contingent will be converting from other fields. Accountants, lawyers, chemists, metallurgists, long-range planners from multinationals bring with them knowledge of organisations, and of professions other than DP.

A third group have taken other courses in data processing, often a BSc or similar course in computer science. Technically, they have a lot to offer. They tend to start off believing they know most of the answers, and finish by being far less confident of their omniscience.

As a bonus, we have contacts with a number of overseas companies, and members of their staff come to us to learn advanced systems analytical skills after a number of years in computing.

We begin our programme with a three-week, full-time Cobol course. Then follows the main course, during which students are introduced to the tools and methodologies used by system analysts, including subjects such as file design, flowcharting, operational research techniques, procedural languages, decision tables and structured systems design. They get to know about operating systems, database systems, online and real time systems, and microcomputers.

They use case studies to practise feasibility studies, fact finding and recording, systems design and documentation. They learn about the assessment of computer performance using simulation techniques, software and hardware monitors and benchmarks.

In short, we do all we can to ensure that they have the tools and the techniques to meet the challenges they will face in the field.

None of this would help if they lost sight of the purposes a computer installation is meant to serve. To meet this need, they study organisations and business management information needs, accounting and financial topics and the computer industry in the UK. This is rounded out by looking at a wide range of present and potential applications in detail.

That describes what we teach. The students increase in self-confidence – ability to express themselves and to tackle anything that comes up becomes almost tangible in the last few months of the course.

The proof of their success – and ours – is that students without prior experience are doing valuable jobs in bureaux, gas boards, consultancy firms and large user installations, while some have set up their own consultancies.

The more I see of their success, the more I believe that the greatest benefit we can confer is confidence, backed by sound knowledge. So many people in the DP industry have been forced to learn "on the job", with their horizons limited by one installation and one manufacturer, that well-educated people still stand out.

Our reward is to be asked, as we recently were, "Can you find us five more as good as the two we have taken?"

Owen Hanson

FOCUS

Company fall-guy's fight for survival

THE DPM has long been urged to delegate his responsibilities in the interests of the installation and his own health. So successful has been his response that, in some cases, the DPM has almost delegated himself out of a job.

On his home ground, the system manager and communication specialist wield considerable power and influence inside and outside the computer installation. The end user now enjoys, along with his distributed processor, similar levels of power and responsibility.

Before long, senior company management could be joining the DP power game. Having achieved a reserved company car parking space, they will be claiming their right to an individual IBM or Digital Personal Computer. As a result, DP management could soon find themselves outnumbered, outvoted and, if they are not careful, out of the running in the corporate power game structure.

In many cases company management have been keen to put the DP team well and truly in place. And the place they have in mind is one limited to producing and maintaining the corporate database – processing and accessing the data being the sole responsibility of the end user.

Such corporate rejoicing, however, could turn out to be ephemeral. The DPM has become the accepted fall-guy for the entire company. Finding a replacement or substitute will not be easy. The DP operation has been a convenient target when top management are awarding blame for failure to meet targets or service objectives.

Taking-the-blame strain is not limited to the UK. A recent US management forum was told that the DP department is often the last to know of corporate plans and discussions, but is still expected to react.

One major DP objective should be to delegate or bribe at least one company informed source to keep the computer section in touch with company plans and policies. Being told, for instance, on a Friday evening that the company will be dealing next week in convertible currency options or moving from buying-in pre-assembled components to in-house manufacture, and that the computer was expected to meet the new requirements, is, even in IT Year, an impossible assignment.

When the company or computer chips are down, the DPM is in the front line. Should the night shift operators neglect to set the correct data line for the monthly invoice run, or input procedures screw the database file before security dumping has been completed, the DPM could well be in line for dumping procedures himself.

For the DPM, delegation is a worthy objective, but extremely hard to achieve. It is the responsibility of DP management to keep in touch with all developments and procedures which involve the DP team.

In any case, the aggrieved user would not be keen to accept a delegated DP victim. It is the DPM's head which is demanded; substitutes are not acceptable.

Much of the DPM problem areas arise from being set impossible tasks. The solution, according to the US forum, is to stop worrying. Instead of racing around trying to meet every impossible timescale, the DPM is advised to inform management and users on the problems and probable results of the project.

Alan Simpson

HUMAN TOUCH

A little help from the rule book

DURING his "two years' experience of programming" that turn a TOPS trainee into a sought-after commodity he or she must have learnt something. We find it difficult to believe that that something is anything other than their own set of rules.

The rules below are extracted from "The Programmer's Book of Rules" by Ledin & Ledin, published by Lifetime Learning Publications ISBN 0-534-97993-9. Book learning is no substitute for experience, but certainly can help it on its way.

- Loops are an indispensable programming device, because repetition in some form is the fundamental reason behind most programs. However, don't risk the embarrassment of uncontrolled repetition.
- Break programs into groups of statements that can be tested and debugged apart from the rest of the program. In Algol, Pascal and PL/1, they are called blocks and procedures.
- Always label all your output. What makes sense to you now will be obscure later when you look at the program.
- Basic has convenient (but trivial) array manipulation facilities (the MAT statements). APL has powerful array (vector) handling features. Recursion is possible with the Algols, Pascal, and PL/1, as well as in LISP and Snobol. Some languages, such as Pascal, allow you to define your own data structures. Pick from among the languages available to you the one that best handles the data structures you need.

Cliff Dillon

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PERFECTING TECHNOLOGY

DOWNTIME

Diets tailor-made to suit

THE stomach should be one quarter full at breakfast, three-quarters full at lunchtime and half full at dinner. Such is the advice of Barbara Caldwell, a consultant nutritionist, who uses a computer to help diagnose the dietary ills of her clients. Her computer will also tailor a diet to the needs of every different metabolism.

"Biochemically, we are as individual as our fingerprints and we vary enormously in our specific nutritional needs," explains Caldwell.

She issues the following general directive: "Eat and drink only when thirsty and hungry."

Precisely what I have been doing all these years, my dear. As a result my trousers have always had to be tailor made.

"We think you may have an IBM Personal Computer under all the bottles of brandy."

Next step, the dirty postcard

THE technique of computer image enhancement has found a new application in the photographic reconstruction of Old Master paintings hidden beneath the paint layers of later and perhaps lesser works.

X-ray photographs of the hidden under-layers have for years been available to art historians, but they have not been clear enough to identify the painter responsible.

The computer will "purify" these images by eliminating elements present from the unwanted top layers and the underlying canvas or wood.

Exposure of these masked paintings can prove rewarding indeed, as Chad himself once discovered. He was presented with a huge canvas on which was painted a cluster of mermaids basking on the shore of a tropical island. They were prettily clad in little woollen cardigans.

Unsatisfied with this state of affairs, Chad patiently and delicately chipped away at the mermaids' torsos using a mild paint remover. When he had finished, the mermaids were naked as a candle flame.

The clothing had been painted on to appease the sensibilities of the Victorian drawing-room.

Sex-changer unsacked

GOOD news for those unhappy with their sexual lot. The sacking by GEC Telecommunications in Coventry of an engineer who decided to change sex from man to woman was ruled illegal by an industrial tribunal.

Following this important test case, the woman was reinstated by GEC with a vote of confidence from her fellow employees. A GEC statement described the original sacking as having been taken "after proper consideration."

No comment — no story?

MEMBERS of the British Telecommunications Systems consortium set up to export System X are declining to comment on reports that the Department of Industry is withholding a £16 million grant to aid of further development of the system for export markets until the consortium reorganises its marketing effort. The DoI declines to confirm that such a grant has been applied for.

Plessey is pressing for changes in the marketing arrangements but declines to give details, and British Telecom dismisses comparisons of System X with Concorde on the grounds that development is ahead of schedule.

Of such declinings, dismissals and refutations are news stories made.

Ahead of time

I HAVE often wondered why the logo used by the BBC for brochures on its teletext service, Ceefax, is not reproduced on letters itself. The reason is simply that it is not yet technically possible to reproduce it.

Loth to part with such an original piece of art, the BBC is waiting for the heat of technology to bring the symbol in from the cold.

10 YEARS AGO

From Computer Weekly of June 22, 1972 . . .

GLC LEADER Sir Desmond Plummer switched on the latest phase of the Greater London Council's computerised traffic system, serving the Baker Street and Marylebone area . . . A new disc file, the 8460, announced by Univac, was claimed to provide the largest storage capacity currently available. It could handle 2.2 million characters of storage online.

ComputerWeekly

Quadrant House, The Quadrant, Sutton, Surrey SM2 5AS

Thursday, June 24, 1982

The company that refused to die

IN the mid-Seventies, there was a standing joke in circulation that the initials ICL stood for "It Can't Last". At the time, the atmosphere within the company was one of complacent lethargy, and no one working there could believe that the cloistered calm would ever be shattered.

But the worldwide recession and the birth pangs of the 2900 range and its futuristic but unreliable operating system, VME/B, put an unaccustomed strain on the resources of the company. Not that there were insufficient competent technicians. Far from it – ICL has consistently been in the forefront of developments in both hardware and software.

The main problem facing ICL was a total lack of direction from above. In a company formed from the amalgamation of several others, there is always the risk of forces pulling in different directions. Was VME/B the way forward? Possibly not, so the less adventurous, but incompatible operating system VME/K was developed.

Pressure from the large 1900 series customer base forced ICL to provide continuing 1900 mode operation on the 2900 hardware, and users of the old English Electric System 4 also needed an emulator to enable their software to run on the new range.

□ □ □

ICL needed someone to give the order to advance in one direction rather than in four or five at once. But after managing director Geoff Cross left in 1978, the company lacked a suitable figurehead, and little guidance was forthcoming. Existing customers, faced with the prospect of upgrading to the completely new architecture of the 2900 series, saw the lack of direction. Many decided to move to other manufacturers' kit rather than face an uncertain future with a company which didn't seem to know where it was going.

Even within ICL it was not uncommon to find employees who had no idea who was running things from the ivory tower in Putney.

But you would be hard-pressed now to find any ICL workers who have not heard of Robb Wilmot and Sir Christophor Laidlaw. The new, slimmed-down ICL has one of the best management teams in the UK.

But at the beginning of 1981 the omens were not good.

Last year 25% of the workforce was disposed of in what was seen at the time as the first death-throes of an expiring company.

The virtual cessation of peripheral manufacture was also seen as a sign of a company in decline, as ICL moved into "badge-engineering" in a big way.

But ICL has confounded the critics and refused to die. For the first time in its history, ICL seems to know where it is going – and that even includes going across the Atlantic to compete with the giants on their own ground.

With the first Atlas 10 sales shortly to be announced, reports of IBM concern are becoming more frequent. Any company which issues Press releases after it has lost a contract to ICL, and seeks High Court injunctions to stop a deal with ICL being signed, is a very worried company indeed.

□ □ □

City analysts typically predict that ICL will be in the black by more than £20 million at the end of its current financial year. The product line includes processors more powerful than anything IBM can offer, the much-derided VME operating system finally has its act together and devices such as the content addressable filestore and distributed array processor are technically streets ahead of anything from most of the competition.

The company has not yet had to draw on the £200 million government loan guarantee, recently extended, and all the signs are good that the patient is well on the road to recovery. Chairman Laidlaw has been awarded his knighthood a year earlier than expected, and it is not usual to afford such honours on lame ducks.

Perhaps the mid 1980s will see a change to the old joke: It Can Last.

1984 and all that . . .

THIS week's example of the strange things people say about computers was sent in by Boris Allan, of Stockport, who wins £5.

If you receive more than one envelope from us on the same day, it is a result of our data processing program. Hand sorting is more expensive than postage.

Message on back of envelope from Dutch publisher

LETTERS

Unfair to the south-west

DAVID CASBY's report (CW, June 3) purports to give a picture of four industrial development areas, one of those being the South-west. I was amazed that in his view the County of Avon and the South-west are synonymous.

To discount Devon and Cornwall in his final paragraphs in such a cavalier, naive fashion does no credit to him.

He alleges a disproportionate cost in journey times. The advent of the M5 to Exeter and the excellent dual-carriageway to Cornwall belie this. (Exeter-London three hours, Plymouth-London four hours).

Excellent airport facilities at Plymouth and Exeter exist (1¼ hours and 55 minutes respectively) and the train service is admirable (3¼ hours and 2½ hours).

To write-off the labour force as lacking the blend of necessary industrial and commercial skills is quite unjustified. The achievements of the educational establishments in this area in high technology are considerable and the environmental attraction to existing quality staff is undeniable.

At least 50 companies of different shapes and sizes involved in high technology, to my immediate knowledge, operate successfully within this county. They include AMP of Great Britain, Bideford; John Heathcoat/Focus Division, Tiverton; Holsworthy Electronics, Holsworthy; Plessey Semiconductors (LSI) & Gyroscope, Texas Instruments, Tecalemit Electronics, Plymouth; J & S Marine, Barnstaple, not to mention many who find Cornwall a worthwhile base for their operations.

His penultimate paragraph is quite irresponsible, in my view, and it is clear from the whole tenor of his article that his knowledge of the true industrial South-west is abysmal.

Why doesn't Mr Casey come and have a look?

D. HALL
Industrial Development Officer
Devon County Council
Exeter

David Casey's references to Devon and Cornwall in his review of the South-west, were curtailed due to shortage of space. – Editor.

Tribute to a pioneer

I SHOULD be grateful if I might refer to the sudden death of J. R. Ellison.

Early in computing he was responsible for key work on the English Electric KDF9 computer, including design of the multiplier.

But perhaps Ray Ellison will be best known through his well-earned reputation as one of the leading national authorities on computing security. He contributed substantially to national awareness of the importance of this subject.

As a colleague I was very appreciative of his pioneering efforts from the early 1970s in an area in which interest always has to be developed by persuasive, knowledgeable effort.

I am sure many people in computing will be saddened, as I am, by the loss of a highly respected member of our community and of a very likeable colleague and friend.

E. J. HOWE
Deputy Director
National Computing Centre
Manchester

Chess aid for disabled

YOU included an appeal by J. F. Coldwell of Netherton, Huddersfield, for some aid to chess playing. I should be grateful if you could pass on to him the following information:

I do know of a device which enables two players to make their own moves, though themselves not able to make any limb movement. Presumably, one player can thus play each in turn and so play against himself.

The device was developed at Queen Mary's Hospital for Children, Carshalton, Surrey, for an in-patient, and I am sure that the staff of the Medical Physics Department there would be happy to send him details.

Miss H. M. TOWNLEY
Disablement, Electronic Aids,
Reference System
117 Wickham Chase
West Wickham
Kent

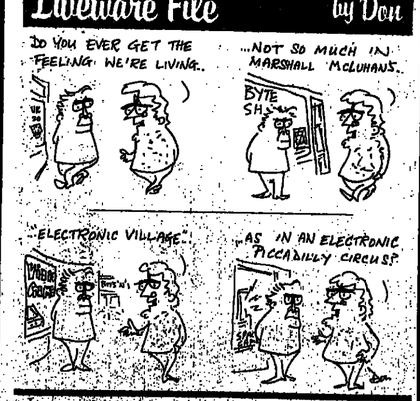
On-the-spot support essential

YOUR coverage of our annual results entitled "ACT beats slump with profits up 33%" (CW, June 17) was much appreciated. Could I, however, correct one small but important point? There is no intention of supplying our 16-bit ACT Sirius One microcomputer direct to end users.

We feel that on-the-spot local support is essential to business users, so Sirius will continue to be sold through our network of 220 professional computer dealers.

LINDSAY BURY
Chairman
Applied Computer Techniques (Holding), Edgbaston, Birmingham.

Liveware File by Don



IBM and its reputation

YOUR editorial, "IBM's reputation is at stake" (CW, June 3) may have misled your readers and I wish to remove possible confusion.

IBM United Kingdom Ltd has not announced the IBM Personal Computer for good business reasons. These are unchanged by the fact that a relatively small number of machines have been bought in the US and imported for sale here by third party, without IBM approval or involvement.

Each dealer outlet in the US and Canada has been individually evaluated by IBM before being authorised, to ensure the highest standard of sales, support and service are available.

We have made it clear at every opportunity that IBM has authorised no dealers for the Personal Computer in the UK, and that we do not provide support for it here. These are facts which any UK purchaser must take into account when considering expected service and support needs.

IBM's "reputation" is very much our concern. It requires that announcement of any product should only take place when the appropriate pre-requisites have been met.

J. W. H. MILLER
Director Business Development
IBM United Kingdom Ltd,
Basingstoke.

Wrong sport

SUE JONES from Data Logic is seen not under a basketball net (as stated in the caption) but a netball net with a size five netball (CW, May 27).

Many computer companies support netball teams for their female staff. Any that do not are invited to contact the All England Netball Association, Francis House, Francis Street, London SW1P 1DE or Tel No 01-828 2176 for details of how to start a netball team and their nearest league.

Congratulations on another successful Computasters and its promotion of many sports.

BRIAN WORRELL
Hon national publicity officer
All England Netball Assoc.

Recognised

HAVING recognised a Telepen barcode in your cartoon (CW, May 27), we were delighted to find it read perfectly. There was no hope of reading the EAN code, of course.

We confidently anticipate Computer Weekly will keep the next generation of robots amused!

G. E. SIMS
Managing Director
SB Electronics Systems
Harpenden, Herts.

The Editor welcomes letters commenting on subjects published in Computer Weekly, or on original topics. All letters must be accompanied by the writer's name and address, not necessarily for publication. Letters may be cut.

ABC 50th Anniversary

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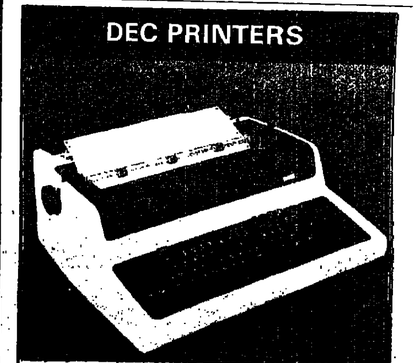

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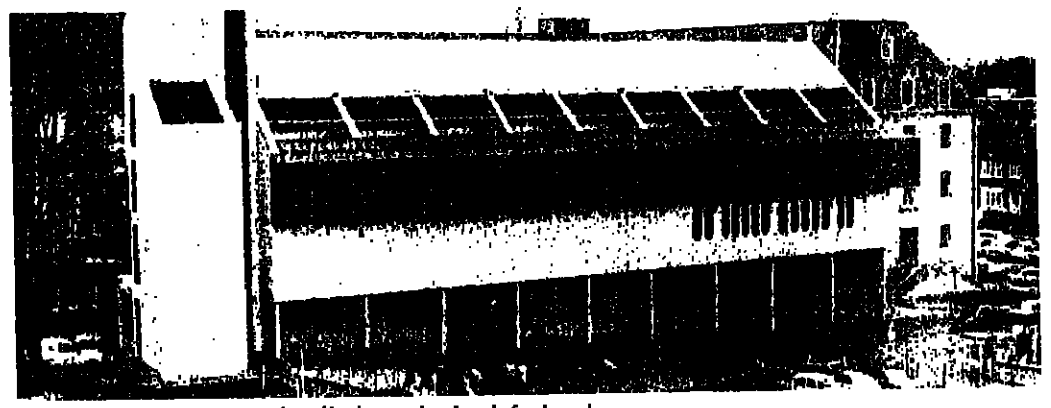
OP SPOT *by Andrew Thomas*

Careful planning for Surrey's site, with no false economies



A splendid new computer installation, and so handy for the prison.

And then I noticed the bars . . . .

ONE of the most common problems journalists face is being lost in a strange town with five minutes to go before your appointment with today's VIP. On this occasion, I was due to meet Roger Toms, head of computer services for Surrey County Council, at the new computer centre in Kingston-upon-Thames.

I wasn't actually lost. I could see the three-month-old building, but I couldn't find the door. I eventually found an entrance in the adjoining Victorian part of County Hall, and ventured inside to seek directions. Finding a group of what appeared to be security guards eating their lunch, I asked if they could tell me how to get into the computer building.

"First things first, sir," said one. "Would you be as good as to tell us who *you* are?"

"Well, yes, I'm from Computer Weekly."

"Ah, I see, sir. It's not this way, this is a prison."

And it was then I noticed the bars on the windows and the heavy iron gate where the door should have been.

"I'll just let you through this door sir, just follow the corridor down to reception. They should be able to help."

As he spoke, he unlocked the ominously solid-looking gate and ushered me through.

"Er, will I be able to get out again?" I asked with a nervous grin.

"Oh, I should think so, sir," replied the jailer with a smile that would have made the Marquis de Sade green with envy.

SURREY County Council had a snag. Their faithful old ICL mainframe was due for replacement, and the machine room, located in adapted offices, had dimensions which caused something of a problem: 70 feet in length, but only 14 feet wide.

"I was going to buy the ops skate-boards," mused Roger Toms, head of computer services. "The kit was old, the air conditioning was on the limit, and even the carpet and ceiling tiles were falling apart. We were changing disc pack filters daily towards the end."

Toms estimated that to bring the old room up to standard would have cost more than £1 million and meant six months at a bureau while the work was being done.

"The various departments within computer services were spread out all over the place too, so it seemed more sensible to have a purpose-built installation to house everything under one roof."

Surrey County Council is committed to providing an information technology centre for the provision of the county's computing needs for the foreseeable future. The new building is therefore constructed in such a way as to allow for expansion and re-arrangement.

All the dividing walls are merely partitions betwen the false floor and ceiling, which makes the expansion or contraction of the various areas a relatively simple matter. In addition, there are no pillars in the centre of any of the floors, which makes layouts far easier to plan effectively.

The new configuration is based around a four-megabyte Univac 1100/82 dual processor and 7,200 Mbytes of fixed disc storage. One hundred and twenty terminals are supported during prime shift – a mixture of VDU, RJE, teletype and mini or microprocessors. Toms also estimates that 75% of all the council's typing is done on word processing equipment, but that any increase in this figure would necessitate economy measures.

"The cost of being 100% electronic would force the council to make cutbacks in other areas. It could mean putting 10 teachers on the dole," says Toms. One of the possibilities for the future is the provision of dial-up ports to allow microprocessors in schools to link with the mainframes for such tasks of timetable preparation.

At present the Kingston centre is manned on a two-shift system for five days a week; the operations staff double as both operators and data controllers. In this way, staff sickness and holidays are easily covered as all the staff can handle any operations task.

Toms claims that a lot of operating staff don't want to work three-shift systems, but that companies are usually better off upgrading the hardware than adding a night shift.

"It's cheaper and gives you more power where you need it – on prime shift," says Toms. "Back in 1973 it was more expensive for us to add an extra shift than to upgrade from an ICL 1902T to a 1903S."

I questioned the wisdom of putting a lot of computer power in locations effectively out of the reach of the central installation, and the attendant costs of providing an extra body at the remote site to prevent any mis-use of resources. Tom's reply was interesting.

"We don't bother. The cost of providing controls is higher than the price of any misuse. If someone uses a remote micro or mini for their personal work in the evening, it doesn't affect us at all."

The machine room has what I considered to be an expensive luxury – an uninterruptible power supply. Toms justifies its existence by referring to a problem encountered in the past.

"We had a power cut and the processor went down in a very untidy manner. We were still having problems with it 10 days after the event."

"The uninterruptible power supply works out at about £7,000 a year over an estimated 40 years' life – it's peanuts against the £2.5 million investment we have here."

The machine room itself has sufficient spare capacity to house another mainframe. As Toms says: "To enable us to convert the workload if Univac introduce a new range with a different architecture."

Toms prefers to recruit trainees and to promote internally rather than to go for experienced people. His department carries out training both for itself and district councils. The length of stay of the operations staff reflects that both

NEWTON . . . "I started on a 32K machine – there's more than that in the punch room now."

the recruitment policy and training work well. The average time spent working for the council is [illegible] 4 years, comparing favourably with the national norm of 1[illegible] years.

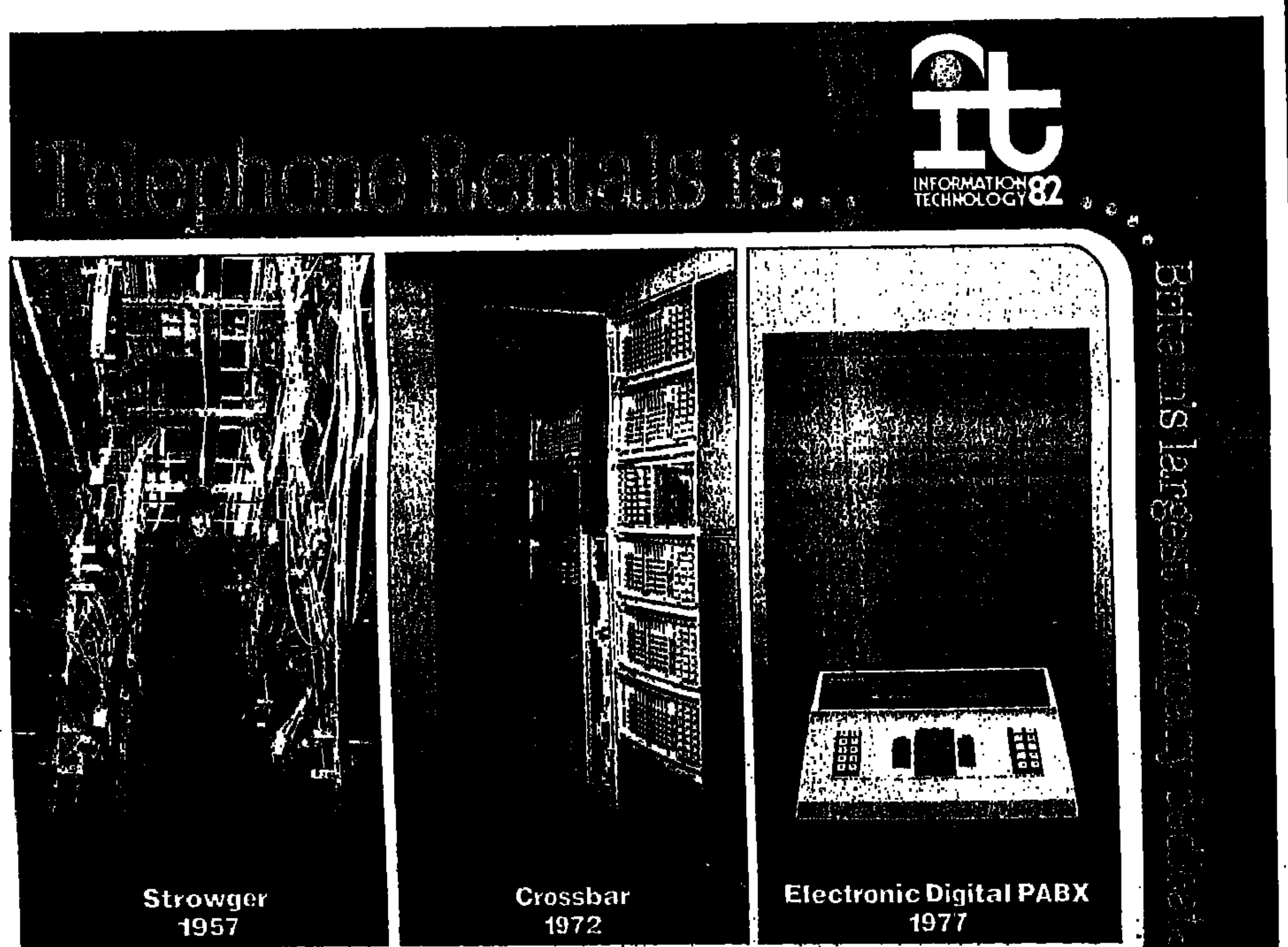
Senior operator Roger Newton has worked at Surrey for six years and has experienced both the ICL and Univac hardware.

"I prefer the Univac kit," says Newton, "but I think that's because the 1902A I started on only had 32K – there's more than that in the punch room now!"

All the staff were impressed with the Univac kit. "Very powerful hardware at a reasonable cost" was a phrase often repeated. [illegible] was more reserved over the [illegible] system software.

"It's not bad at all," he [illegible] "but Univac is a [illegible] company – if you want [illegible] non-standard, you have to [illegible] yourself." The operating [illegible] 1100 executive, came in for [illegible] too: "It's a very stable and powerful system," said Toms.

TOMS . . . "It's cheaper to upgrade the hardware than to [illegible]



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PROGRAMMERS PAGE *by Philip Hunter*

No two rainy days are the same – that's the chief problem in Logica's joint project with the Meteorological Office

Radar link-up with computers in rainfall measuring project

WEATHER forecasting is one of the greediest users of computer processing power, and is an important application for makers of super number-crunchers from Cray and Control Data. In the past there was a sparsity of data for forecasting, especially from the oceans, where many weather systems germinate. Crude extrapolations had to be made.

Such extrapolations were greatly helped by the advent of satellite infra-red photography, responsible for the popular television shots we see of cloud cover over the Atlantic.

The satellite photographs enable the location and movement of cyclones to be fairly accurately pinpointed in areas where they would previously have been missed through lack of firm data.

UK weather forecasts for periods of between one and five days have improved significantly since the weather satellites were launched.

By measuring the wavelength of the infra-red radiation emitted by water vapour, satellites also give some indication of the temperature at various levels of the atmosphere. But they are no panacea. For one thing they give little indication of rainfall. And the only measure of wind they yield is that which can be gleaned from the cloud patterns.

Meteorologists have had another trick up their sleeves apart from conventional weather stations – radar. Radar has long been used for measuring rain within something like a 100-mile radius of the scanner, and it made a timely debut at the start of the Second World War. The latest news is that radar has been combined with the computer to yield more accurate, or quantitative, rainfall data.

It works by measuring the reflection from the rain and then performing standard analyses of the arrays of images produced to give a measure of rainfall. Just as the satellites have brought an improvement in forecasts for several days, so the new radar techniques promise to improve forecasts for a six-hour period by giving more accurate rainfall predictions.

Market gardeners, water authorities and potential picnickers, should be the first to benefit.

Because of the limited range of radar, it is not possible to cover the whole world, so the radar images are combined with those produced by satellite to obtain a global coverage.

Although they give no direct indication of rain, satellite pictures show cloud cover and give a distribution of water vapour throughout the troposphere, which is the lowest layer of the atmosphere in which weather systems operate.

The satellite pictures can then be used to extrapolate data from known rainfall recorded by radar and conventional weather stations.

UK systems house Logica has co-operated with the Meteorological Office in a radar rainfall-measuring project called Frontier. This is a quality control project to evaluate the integration of radar with satellite and conventional rainfall measuring techniques. But the first problem was to calibrate the radar using networks of rain gauges.

Easier said than done, as team leader Conrad Nowikow explained to me. In principle the problem is fairly simple and involves covering a small area with a dense network of rain gauges, extrapolating to give a continuous distribution, which is then compared with the radar echoes.

But no two rainy days are the same, and the calibrations obtained on days of localised heavy storms are different from on days of homogeneous Scotch mist. A more serious problem is introduced when there is snow and hail in the air. Ice is less dense than water, and snow is full of air. Yet both deflect the radar signals just as do rain drops, so naturally the calibration is prejudiced by their presence.

Topographical features also hinder the calibration process, and all these factors affect the radar scanning at work. Ships are an additional hazard, causing erroneous soundings, a particular problem in the busy shipping lanes of the English Channel.

Frontier meets the problem by enabling the radar images to be corrected for spurious echoes. If it is known that there are unusual conditions, such as hail or snow, operating these can be adjusted to compensate.

Frontier is at present a paperless system with emphasis on colour graphics, which play a big role in other Logica projects. Data input is menu-based, and done with a touch screen. Joy sticks are provided too so that the operator can play back through the last day's sequence of images.

Hardware is a VAX 750, and the eventual full system will have two VAX 750s coupled back to back with a 124 Mbyte Winchester drive, colour graphics and monitors.

Frontier offers an intelligent controller to link radar outstations with the Meteorological Office network through the existing landline system. Eventually each Frontier controller will be unmanned. At present some of the radar scanners linked to a Frontier controller are unmanned.

The eventual aim is to have Frontier interacting with all other meteorological computer and information networks, in particular with the central forecasting service based on the supercomputers.

Already there are, apart from the link with satellite information, optional overlaps with the conventional weather stations and data from balloon soundings.

Four Frontier systems have been sold for £150,000 each. A fifth has been ordered by the London Water Authority, to be used for aiding the prediction of floods, and there will be 12 in the final network.

A similar radar system has been developed in Scandinavia specifically for snow and hail. It operates at a longer wavelength more suitable for detecting these larger items of precipitation.

Software initiative answers govt call

ALTHOUGH government reports rain down on us with the frequency of Citizen's Band radio, it is unusual to have two on the table at once concerned with software.

Both take the same tone: the government should take more initiative in software research. One, by a working party of the National Economic Development Office, NEDO, suggests that the government should make more effort to co-ordinate software research.

The other, from SERC, the Science and Engineering Research Council, goes further. It advocates a software technology initiative to improve the relationship between academic research and industry.

WESLEY . . . Scathing of commercial Ada compilers currently emanating from US.

Presumably the sort of thing the SERC people have in mind is the new software technology division set up by SDL, Systems Designers, based in Camberley, Surrey.

It has the purpose of investigating and developing new findings of software research, and much of its effort is concerned with the as yet largely unexploited language, Ada.

The new department is off to a good start, with SDL recently winning a £100,000 extension of an existing contract with Olivetti to develop a portable Ada programming environment, known as MAPSE. It will be implemented on minicomputers made by Olivetti and the German company Christian Rolving.

A little confusion, to say the least, is caused by the terms MAPSE and APSE. The MAPSE being developed for Olivetti by SDL stands for Minimal Absolute Programming Systems Environment. APSE stands for Absolute Programming Systems Environment.

MAPSE includes the compiler and operating system – in other words the minimum requirement for an Ada installation, as the acronym implies.

APSE incorporates other higher level facilities such as systems building tools and database management.

In the UK, responsibility for developing MAPSE is jointly held by the Ada consortium, made up of ICL, SSL, SPL (Systems Programming) and SDL itself. Information about MAPSE is freely exchanged between the companies in a spirit that would surely appeal to compilers of government reports which urge greater co-operation in software development.

Development of APSE is left to individual companies, and obviously there are many possibilities. But as yet APSE is little more than a gleam in the eye of Ada pundits.

The Ada compiler being developed by SDL for the Olivetti contract will be adopted as a standard by two Ada consortia sponsored by the Commission of the European Communities.

SDL is investing a lot of research and development time in its Ada compilers, and perhaps partly because of this, several people there take a dim view of the Ada compilers already commercially available.

Ian Wesley, who is head of the new software technology division, is especially scathing of Ada compilers developed in the US which are being imported into the UK. They are not genuine Ada compilers, he says, but Pascal compilers with the key words transposed.

PUZZLER

IN this week's problem you are given nine square tiles – with respective side-dimensions of 2, 5, 7, 9, 16, 25, 28, 33 and 36 units – and asked to lay them together on a flat surface (with no overlaps) to form a perfect solid rectangle having an area of 4,485 square units.

See page 47 for the unique solution.

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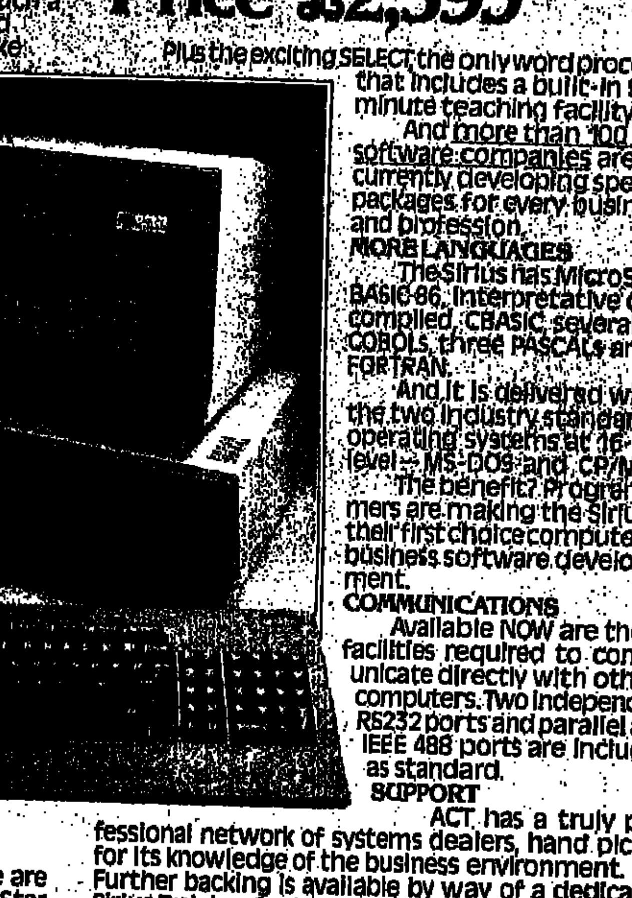

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PEOPLE

Marketing chief for Star Group

COMPUTER manufacturer Star Computer Group has appointed **Janine Blackley** as marketing director. She is the first woman to attain such a high position in the company, having worked her way up from client account assistant in the company's computer section in seven years.

Following promotion into the sales department, she became area sales manager for London and the South, heading a team selling the Star Auditor range of small business systems. During this period the company gained a quotation on the Unlisted Securities Market.

As marketing director she will be responsible for branches in London, Birmingham, Manchester, Liverpool, Newcastle-upon-Tyne and the West Country.

Blackley, aware that she has risen in a male-dominated area, says next year will be of major importance and she will be trying to push the company still further.

Mercury sales boss

MERCURY Communication has named Stuart Bailey director of sales and marketing. The company was recently licensed by the government to operate a business-oriented telecommunications network based on fibre optic and radio links.

Bailey joins the company from Geisco, where he was marketing director, Northern Europe, for about a year. Before that he was UK sales director for the company. Before joining Geisco he held various general marketing positions with ADP.

The bat Dexter is using was signed by last season's England and Australia sides and sold to Honeywell for £500 for charity.

Cricket awards

IN conjunction with the Observer, Honeywell is offering England cricketers awards of port and Stilton for the best batting and bowling partnerships in each of the full-length Test Matches with India and Pakistan this summer. Another award at the end of the season will be for the best batting and best bowling partnerships of the six-match series.

Our picture shows former England captain Ted Dexter guarding a Honeywell DPS 6 minicomputer, which provides the BBC's cricket statistics service. With him are Honeywell engineers (left to right): Dave Palmer, Paul Armstrong and Tony Howard.

■ **Richardt Christensen** has been elected vice-president, international sales, at Cyberex. Christensen, who will be based in the Netherlands, was previously manager of the Cyberex office in Veendam, Netherlands.

■ **John Bentley** has been appointed marketing manager at Stage One Computers. Dr **Peter Hartley**, formerly with the department of mathematics and computing at Wolverhampton Polytechnic, has been appointed development director at Stage One Computers.

■ **Sandy McLaren** is promoted to distributor sales engineer at NEC Electronics. He joined the company six months ago to work in the customer services department.

■ **Robin Bulmer** has been appointed by EPS Consultants to set up and manage its new office in Glasgow. He was previously in sales and support with Comshare.

■ **Sandy Helme** has been appointed director and principal consultant at CT Computer Services. He was formerly a consultant with Arthur Andersen.

■ **David Crisp** has been appointed senior systems analyst at Stanton Automation. He joins the company from Marconi's space and defence division.

■ **Bernard Lovell** has been appointed sales manager at Warrington-based Direct UK. He was previously in a similar job with H. H. Electronics.

■ **Frank Owen** has been appointed worldwide telecommunications manager at Texas Instruments. He previously managed the same function in Europe.

■ **Jonathon Hessling** has joined CTL as senior sales executive for East Anglia. He was previously an IBM salesman. John Wheatley has been appointed sales support manager. He joined the company in 1974 as support engineer and served latterly in the OEM division.

■ **Terry Forde** has been promoted from Modcomp sales manager, North European region, to European regional manager.

■ **David Dawson**, formerly sales engineer at Norgain Displays, has been appointed director of the company.

■ **Kim Chalmers** and **Kevin Payne** have joined Nixdorf Computers as sales executives. Chalmers, a senior sales executive covering the South and West of England, joins the company from ICL. Payne will work in the Birmingham office. He joins from Adroit Systems.

■ **Barrie Patman** has been appointed UK software sales manager at Deltan Conversions. He was previously with Cincom Systems based in Maidenhead.

■ **David Gardner**, chairman of the Electronic and Engineering Association (EEA) contracts and advisory committee and chairman of the CBI's contract panel, has been appointed director of the association. He is contracts controller at Philips Electronic and Associated Industries.

■ **Arthur Lock** has joined Axiom Electronics as senior sales engineer. He was previously senior sales engineer at VSI Electronics.

■ **Steve Dowle** has been appointed system support analyst at Systems Resources. He joins from Gratton where he was senior systems programmer.

■ **John Bellamy** and **Owen Hill** have been appointed joint managing directors of Insight Marketing and Personnel Consultants. Bellamy, formerly main board director with ADDS, will cover the Midlands and South England. Owen, who manages the London operation, joined IMPC from Olivetti in 1980.

■ **Richard McGinn** has been named regional director, European AT&T International. McGinn joined parent company Bell in 1969 as an account executive.

■ **John Smith** has been appointed general manager at LMR Computer Services. He was previously customer services manager at Orion Computers.

■ **Alan Stone** has been appointed area sales manager for the Midlands and West England at EPCO Electronics. He was formerly senior sales engineer at Plessey Capacitors.

DIARY

JUNE 27-JULY 2
Computer-aided design of filter networks. Second IEE vacation school at University of Essex. Details IEE, 01-240 1871.

JUNE 28
Local area networks. BCS WP&OA SE branch. United Reform Church, Small Hall, Addiscombe Grove, Croydon. Details Sandy Hathaway 66-35925.

JULY 2-4
Decision making in general practice, AGM. BCS Primary Care Group Society, St Peters College, Oxford. Details Dr Geoff Dove 01-385 7776.

JULY 6
Briefing expert systems. Edward Feigenbaum. BCS Expert Systems Group/SPL. Royal Garden Hotel, London. Details SPL Fifth Generation Computer Project 0235 24112.

JULY 6-9
Man/machine systems, international conference. BCS/IEE. UMIST, Manchester. Details IEE 01-240 1871.

JULY 7-9
Second British national conference on databases, BNCOD-2. BCS/Universities of Aberdeen and Bristol. Bristol University. Details Dr M. J. R. Shave 0272 24161 ext 846 (mornings).

JULY 7-9
Fifth generation international conference. BCS Expert Systems Group/SPL. Royal Garden Hotel, London. Details SPL 0235 24112.

JULY 8-9
A calculus of communicating systems. BCS FACS Group. Queen Margaret Hall, University of Glasgow.

JULY 15
Auditors' brains trust. EDP Auditors' Association Inc. Little Ship Club, Bell Wharf Lane, Upper Thames Street, London EC4. 5.00.

JULY 20
Information systems in health care. BCS Medical Group and Sussex Microcomputer Society. Details Dr Geoff Dove 01-385 7776.

JULY 26-28
Electronic image processing, international conference. IEE. University of York. Details IEE 01-240 1871.

CONFERENCES

■ A SEMINAR for independent computer consultants will be held by **I. P. Sharp** at its European head office in Buckingham Palace Road, London, on July 2. The seminar aims to provide consultants with an opportunity to investigate the new features which have been added to the company's APL time sharing service. The company intends to hold these seminars at six-monthly intervals. Guest speaker at the July seminar is Ian Sharp, the company's founder. Admission is free. Details from Margaret Joachim on 01-730 4567.

■ THE key to beating Japan in manufacturing is the theme of the **British Production and Inventory Control Society — PA Management Consultants** conference, Changing Manufacturing Strategy in the West. It will be held at the Royal Garden Hotel in London on July 6 and aims to interpret Japanese methods of manufacturing into a form which is practical for exploitation by Western companies. The conference is aimed at middle and senior manufacturing management and will include talks on manufacturing strategy; process technology (including robotics); information technology and organisation and management style. Details from: BPICS on (0279) 723554.

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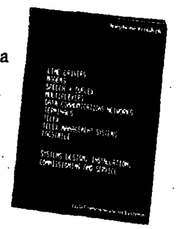

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TKT COMPUTER SERVICES

The UK plastics industry and the DoI have joined to show how MAP grants can help firms to survive . . . Nicholas Benwell reports

Invest in micros – it's the best way to beat the recession

KENNETH BAKER, Minister for Information Technology, has told industrialists so often that they must either "Automate or liquidate" that there are now signs he is being listened to.

In order to put money where his mouth is, Microprocessor Application Projects (MAP), funded from the Department of Industry, have survived numerous government cuts, and are now in far better financial shape than almost any other part of the public sector save defence and law and order.

The Department of Industry reports that it has far more money to invest than schemes to invest in. The response from the computer industry, among others, has not been big enough to mop up the grants that they would like to make.

One of the branches of manufacturing where the application of microprocessors is most likely to prove economic is the plastics industry. Here, in an attempt to increase the take of MAP money, the British Plastics Federation has joined forces with the DoI to produce a combined initiative.

They have jointly spent some 18 months touring the country putting on seminars and exhibitions which show the financial benefits of using microprocessors either in direct manufacture as part of a control system or as microprocessor-based computers to administer a production unit.

Their success has been considerable and the DoI is now in the process of trying to launch similar initiatives with other industries including knitwear, engineering and footwear.

The dependence on the computer industry for each aspect of manufacturing industry liaison is important, as all the schemes require a substantial computer consultancy commitment. Each successful MAP application is applied in the company as one or more of three parts which are:

Part A: A preliminary phase in which computer consultants provide microprocessor awareness and training in how to use chips. This is done either independently or along the lines of the seminars and exhibitions that the plastics/DoI people have been running. Figure 1 shows how necessary this part is.

Part B: Having had some of its staff trained in microprocessors, the company may wish to consider installing a computer that will be linked to its manufacturing plant in some way.

Part C: This is the most important part for the computer industry and it is also the part which has been allocated the most DoI finance. In addition, this is where there has been the smallest response when compared with the money that is on offer. This part is the project support phase where development grants are made available. At the end of 1981 more than 600 projects in all parts of UK manufacturing had received approval, and about £24 million had been committed on grant expenditure to them. Since then even more money has been allocated to this part of the scheme.

	Commitment (£m)	Spend (£m)
Part A	11.32	9.34
Part B	5.25	3.57
Part C	27.90	10.44
	44.47	23.35

A further £11 million, making a total commitment of some £55 million is being made available before April 1983.

Like the curate's egg, the scheme has its good points; some two-thirds of companies which acquired funds under Part B will, or probably will, acquire further financial support under Part C according to a recent DoI survey. That must mean that the scheme is working very effectively as far as improving competitiveness in UK manufacturing industry.

However other surveys show that the scheme is not warmly received in other quarters. Much of the computer industry considers the £3,000 grant irrelevant and difficult to prise out of the DoI – the red tape argument – while many managers in British manufacturing industry seem to hold the view that all computers whatever their size, are not appropriate to their company but are intended only for big high-technology companies (see Figure 2) – the "It's OK for IBM but not us" argument.

Plastics firms are experimenting with robots on a substantial scale in their battle for survival. Chancellor of the Exchequer Sir Geoffrey Howe was also persuaded to snap his calculator for a robot control keypad on an official visit last week to the factory of Dainichi-Sykes Robotics in Preston.

Many MAPs that have been completed show that both criticisms can be false. The consultants received their grant without undue fuss and companies with a very small payroll and annual turnover have now acquired microprocessors on the factory floor as a result of MAP. At the moment one new development project is submitted by computer consultants to the DoI every day of the year and the signs are that that rate is rising.

Before the MAP scheme gathered momentum, various plastics companies were already showing their colleagues the way forward. Healey Mouldings of Birmingham is an example of this group of pioneers. It employs 90, turns over £3 million a year, and has linked its IBM Series 1 to its injection moulding machines, which are used to mould parts for domestic products and the like.

> **A nationwide survey of UK manufacturing shows that there is a net gain in establishments that install micros of 16,000 jobs, and a net loss in the months following installation of 14,000 jobs**

The computer records those products that are of an acceptable quality as well as the number of stoppages that occur during each 24-hour period. The shop manager is not left out and is still there to adjust moulding parameters and to make other specialist decisions, but any action taken is faithfully recorded on the mainframe.

The company reports production improvements on nearly all fronts – a fivefold reduction in unscheduled machine downtime, much less material wastage (down by 30%) and prolonged component life because the machines are running under near optimum conditions.

It has installed a second separate computer on the shopfloor. This is a Fet and is connected to a conveyor where the finished goods are packed. Healey's employs two people instead of six on this work for the same throughput, and now the Fet counts the correct quantities for each carton, prints the customer's address if it is to be sent to a regular customer and provides full despatch details to enable the invoicing department to bill them.

In addition comprehensive transport details are produced and so transport is rendered more economic than previously.

As pioneers, Healey was unable to benefit from MAP, but is collaborating fully with its publicity.

ICI is experimenting with robots on a substantial scale and in its Plastics Division at Hillhouse, Fleetwood is conducting tests on a Unimate 4000 robot that also has to earn its living. It is employed to palletise 25kg bags of a PVC raw material called Corvic in a dusty environment at the rate of some 9 tonnes/hour. It picks bags alternately from two conveyors, lifts its own guard when there are 40 bags on the pallet and pushes the pallet out into the corridor so that a fork-lift truck (driven by a human being!) can load the pallet into the stores.

Programming in this example is considered an unskilled job because the programmer merely has to drive the robot's arm by remote manual means and while that is done the robot writes away to its memory key points in the path that it has just followed. When it needs to carry out that movement in practice it follows exactly the same path except that any superfluous movements that may have been included will automatically be left out.

British Industrial Plastics used to employ 35 people at its IPSO Department at Streetly in the West Midlands, to manufacture polypropylene sweet containers that can be used as construction toys when they are emptied. It used several micros on its shopfloor including Lucas Logic EMUU data collection terminals which were connected to DEC hardware but despite investing in advanced manufacturing techniques, it was closed down at the end of 1981.

The British Plastics Federation reports that there have been significant redundancies over the last year or two due to all causes among its members. But, despite estimates suggesting redundancies as high as 30%, there does seem to be a widely held view that unless member companies adopt more advanced manufacturing techniques, the level will rise even higher. This view is supported by a nationwide survey* of UK manufacturing which shows that there is a net gain in establishments that install micros of 16,000 jobs and a net loss in the months following their installation of 14,000 jobs.

Another initiative that has taken place is the establishment of a research fellowship which is funded jointly by the plastics industry and the Science and Engineering Research Council. This work is still in its early stages but it confirms the suggestion that organisations which have invested in micros and the like have survived the recession much better than those that have not.

**Microelectronics in industry: What's happening in Britain*, by Jim Northcott with Peter Rogers. Published by the Policy Studies Institute in 1982, £5.

Nicholas Benwell is on the staff of the Cranfield Institute of Technology, School of Production Studies.

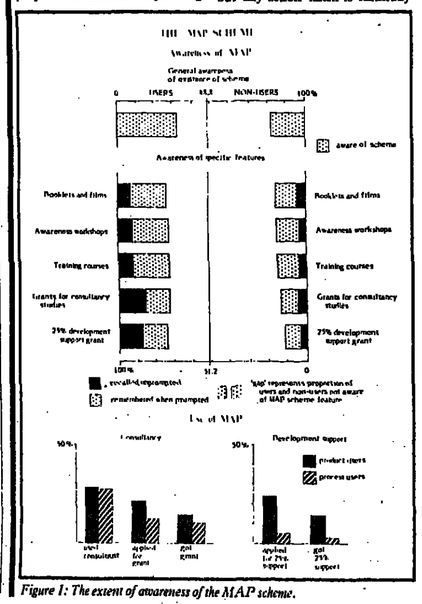

Figure 1: The extent of awareness of the MAP scheme.

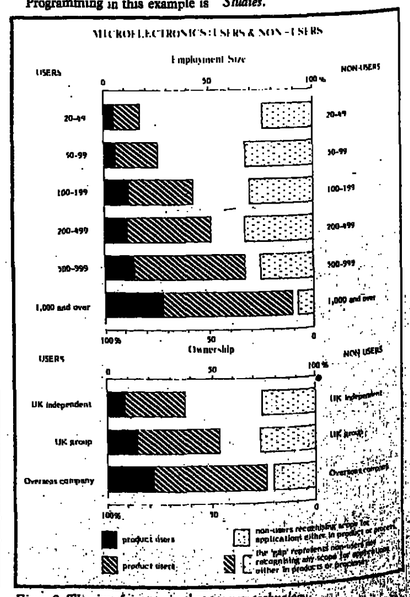

Figure 2: The size of companies that use new technology.

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PLESSEY PERIPHERAL SYSTEMS

BOOKS

Electronic office benefits in doubt

The Electronic Office, A Management Guide to the Office of the Future. Dennis Jarrett. Gower with Phillips Business Systems. £12.50.

SOME modern developments seem to occur in an effective manner and as a natural application of new ideas, bringing about considerable change with a minimum of fuss; others give rise to a flurry of publicity.

In the office environment, document copying is an example of the former and the electronic office a case of the latter, despite the fact that a lot of its applications still have to be resolved.

This book is published as part of Information Technology Year 1982 publicity material. A management guide bearing a foreword by a Minister of State and written by a journalist should be authoritative, helpful to managers and easy to read. Unfortunately, I found it disconcerting to have to deal with the summaries and key points (blue panels) concurrently with the normal text.

The text provides a useful and extensive discussion of the background of the electronic office and the concepts thereof. It covers systems such as microprocessors, information storage, local networks, telephones, viewdata and other modern office applications, and the author clearly has an extensive knowledge of his subject.

Managers looking for help will find little assistance in deciding the type of equipment that will be advantageous to the business, or in selection criteria for suitable equipment and software, despite the potentials and problems having been discussed comprehensively.

To say "it has not been possible to identify precisely the extent to those benefits" is right, but the business manager will need to be assured of certain minima before embarking on this type of change and investment.

A. J. Thomas

Signposting to a mass of software

International Directory of Software 1982-1983. Computing Publications Ltd. VNU Business Publications, 55 Frith St, London W1. £48.

THIS publication makes it very difficult not to find what you are looking for. Of the many directories on the market it is probably the most comprehensive – certainly it is a masterpiece of indexing, cross-referencing and signposting through the mass of software products and companies offering their wares.

The 1982 Software Directory sticks closely to the format already well-established and proved with previous issues and the forerunner Computer Users Yearbook of hardware products. There are sections dealing with the products themselves, split into separate categories, indeces dealing with industry-specific products and products by category, followed by detailed profiles of suppliers, and for those who already know what they want by name, a quick-reference index of named products with page number.

This arrangement allows someone searching for a product or a range of products, or even a software house specialising in certain fields, to find a reliable route around the mass of products now available. It is noticeable that the book is almost as thick as its hardware sister guide.

Nevertheless there are a few omissions – perhaps inevitable in a fast moving industry – and a strong bias towards US companies in the list of suppliers at the back. One innovation is a separate section on microsoftware, sorely needed in that fastest-moving of software industries.

The introduction and explanation on how to use the directory is clear without being wordy, and repeated in French and German. The categorisation itself is very easy to follow, although there is some inevitable overlap, especially in the systems software field.

A consistently good feature of the directory is its layout. Liberal use of page headings, capitals, bold type, and blank spaces rather than unbroken seas of type, makes it easy to find particular features at a glance. The detailed section on products is set out in a way designed to make comparisons simple.

Claire Gooding

Taking the guesswork out of forecasting sales

Electronics: The Market and Technology to 1985. Peter Evison. Canebook Ltd. 183pp. £95.

EVEN for those closely involved in the electronic marketplace, forecasting future sales, trends and development would be regarded as an enterprise to be approached with considerable hesitation, caution and finger-crossing. The approach of this book, however is far from that of wishful thinking or guesstimating.

Behind the comprehensive lists and tables is much research, statistical analysis and a broad understanding of what each and every electronic product does, including limitations. The product editorial which accompanies each review amply demonstrates the author's grasp of the electronic marketplace.

The volume has little hesitation in nominating computer DP equipment as being in the best marketing category. Within this area, electronic data storage has the highest indicated average growth up to 1985, closely followed by the small computer.

At the other end of the growth table, data acquisition equipment and large/medium computers are forecast to have a relatively slow growth pattern.

The fascination of such publications lies in following through the assorted tables. Analysis of electronic data storage, for instance, reveals that whereas magnetic disc sales will be double those of magnetic tape in cost terms by the end of the review period, the standard teleprinter is giving way to the more flexible video display terminal.

The section casts doubt on progress of bubble technology and suggests that from 1985 onwards yet another data storage technology, based on the application of "superconductivity" effects at low temperatures, may begin to compete commercially.

Surprisingly perhaps, the review suggests that the public are not keenly supporting the introduction of PoS systems into the shopping centre.

Similarly, there is some public resistance to the further introduction by the banks of highly efficient cash terminals which can automatically record credit transfers. But the report makes clear that providing those involved in the marketplace have hit the right time and the right price, there is an outstanding potential.

On the domestic front, the book reveals that the sales growth league will be headed by electronic games and microwave ovens. Trailing this particular sector will be personal calculators (sales saturation having been reached) and home audio.

Other items of note include the near vertical growth rate for missile and space system electronics and cruise missile products.

Alan Simpson

This book is worth queueing for!

Queueing Theory: A Problem Solving Approach. Leonard Gorney. Petrocelli Books, New York. £17.00.

THIS well laid out book, generously illustrated with worked examples, sample programs and graphs, successfully animates a subject often buried in the stodge of academia.

I take issue with the author on one point only: his claim that readers who lack the required mathematical training will be able to pick it up from the earlier chapters which deal with probability theory.

I doubt it. The material is well explained for someone with A level mathematics, but a reader unfamiliar with algebraic notation and the abstract thinking of probability theory had better take the fundamentals for granted and concentrate on writing programs from established formulas.

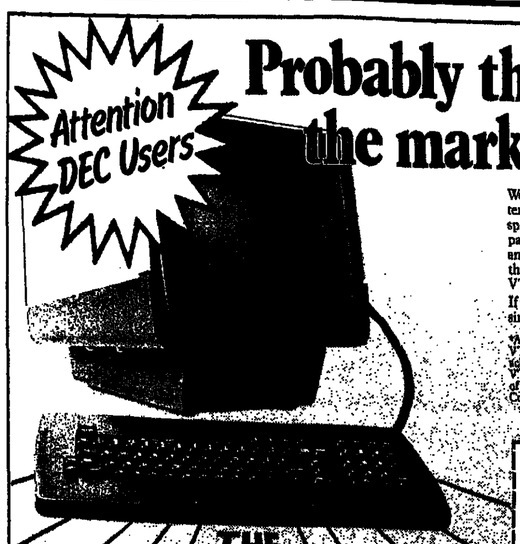
Numeric examples for solution by hand are supplied with answers to test understanding of the formulas involved.

One especially delightful example concerns a petrol pump with on average five people arriving each hour taking six minutes to fill the tank.

A simple application of the relevant formulae tells us that the traffic intensity is 0.5, and there are on average one person in the system at any time (either being served or waiting), half a person in the queue and queueing time of six minutes for each person arriving.

People who spend a lot of time in queues need never again be bored after digesting the guts of this book. They will instead be busy jumbling the queue about in their heads to make it shorter.

Philip Hunter



Probably the best VT100* emulator on the market at a fraction of the price.

We'd like to introduce the TT100 visual display computer terminal. We've built it with full standard DEC VT100* specification and many of its optional extras in one stylish package. We've also given it a lot of additional enhancements and made it much easier to operate. The interesting thing is that with all this the TT100 is an awful lot cheaper than the VT100* and it's available now.

If you'd like to know more about what you'd gain with a TT100 simply fill in the coupon or give us a ring.

*All reference to DEC and/or VT100 are made in full acknowledgement DEC and VT100 are registered trade marks of the Digital Equipment Corporation.

Dealer enquiries welcome. We wish to appoint additional selected distributors, but to maintain high profitability the number will be small. Interested parties should contact us.

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- ★ 15" Screen
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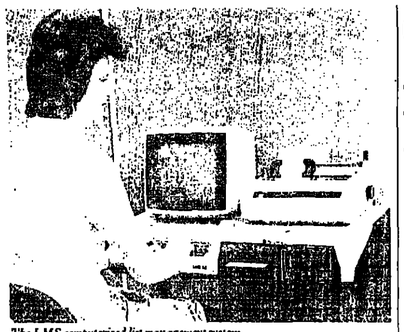
Low-cost approach to address list production

THE LMS35 computerised list management system, launched by the Business Equipment Division of Bell & Howell, is a low-cost approach to address list production and handling.

Designed for the mailrooms of low to medium volume users, the LMS35 offers two advantages over conventional approaches. First, the computer's software program was written and developed by mailing and addressing specialists and second, the total system is available for what is claimed to be about half the cost of comparable systems.

At an all-inclusive price of £4,400, the LMS35 list management system comprises a 48K Apple II microcomputer with visual display unit, keyboard, two disc drives, a Centronics 150 characters per second matrix printer, work station unit, the software program plus comprehensive operator training and an operator's manual.

Information is entered on to the LMS35's file disc through the keyboard and the operator is led through the process by a simple English-language "menu" system that appears on the screen, showing such choices as "Create a list", "Update a list", and "Print a list". There is also a "Help" key if the operator gets into difficulty.



The LMS computerised list management system.

A major feature of the LMS35 system is the way in which very long lists can be merged and transferred from one disc to another to obviate the problem of running out of storage space.

When the disc is full (approx. 1,000 addresses) an instruction appears on the screen telling the operator to "copy" the disc.

The LMS35's sort feature is based on an "Identification field code" with up to 39 alphanumeric characters, entered at the same time as the name and address.

Bell & Howell (CW), 33-35 Woodthorpe Road, Ashford, Middlesex. Tel: Ashford (07842) 51234.

Cutting out need for different tape drives

NAMED Gemini for its twin-mode capabilities, PCML's DMF-1000 is said to virtually eliminate the need for two different tape drives in a computer room.

Until now, data processing managers have had to use one transport to load and unload discs and another for start-stop transactions. PCML says it can now provide a single source for both functions.

"Current streaming tape products, while inexpensive, are also grossly inefficient for any use other than backing up disc data," PCML director Miles Miller said. "Their transaction speeds are pitifully slow, and at high speeds they become incapable of repositioning the tape quickly enough following write errors to match the flow rates of data."

PCML claims that the DMF-1000 Gemini solves both problems. For the day-to-day transactions of a computer room, the Gemini operates at 45 inches per second.

In the streaming mode, the Gemini operates at 125 inches per second and constantly monitors the data rate for any mismatch with Winchester or SMD disks. If such a mismatch exists, the drive automatically returns to its 45 ips transaction pace for increased efficiency. There it awaits either a software command or manual front panel switching to resume back-up speed.

Components such as hard-faced read/write heads for longer life, high-performance servos and mechanically isolated elements are combined to obtain optimum performance throughout the speed range.

Peripherals Computers Memories and Leasing (CW), MCP Division, 51 High Street, Esher, Surrey, KT10 9RQ. Tel: (0372) 67282.

The Model IS502 guillotine.

Guillotines from Italy

A NEW range of continuous forms handling equipment manufactured by Italsystem of Milan, has been introduced by Computermail.

A choice of two guillotines is offered. The first, the Model IS502 has variable speeds up to 15,000 4-inch forms per hour and three blade cutting system for single or multipart sets with pre-selection cut forms counter.

The second machine is the Model IS504 with fixed speed and two-blade cutting system.

Computermail (CW), May Place, Basingstoke RG21 1NX. Tel. (0256) 62444.

Announcing . . .

COMPEC SCOTLAND

. . . Scotland's own professional computer show.

The highly successful Compec exhibition of computers, systems, peripherals and software is to be held in Scotland for the first time this year.

Compec Scotland in Glasgow between September 7-9, 1982 will allow companies selling into this important market to focus on computer users throughout the country.

Surveys of visitors to computer exhibitions demonstrate that users prefer to attend a show which is local to them. Compec North was enthusiastically welcomed in Manchester last year, and has expanded for the 1982 event in June.

Now Compec Scotland with a venue in the centre of Glasgow ensures a place at the heart of another key market.

For information about exhibiting at Compec Scotland contact Chris Timmins, Executive Director, IPC Exhibitions on 01-643 8040 Ext 4869. Or clip the coupon.

Please send me details of exhibiting at Compec Scotland.

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Return to: Chris Timmins, Executive Director, IPC Exhibitions, Surrey House, Throwley Way, Sutton, Surrey SM1 4QQ.

Making computer staff more comfortable

BASELINE is a new range of ergonomically designed office furniture for use with computer peripherals, word processors and data processing terminals. It comes from W. H. Deane of High Wycombe.

Matching form to function, every item in the range of desks, tables, work platforms, shelves and pedestals is available in teak, mahogany or beech real wood finishes, all with hardwood rounded edging for durability and style.

Richard Yates, general sales manager for W. H. Deane says: "The rapid adoption of minicomputers and word processors in all areas of commerce and industry has not, until now, been matched by furniture specifically designed to adapt to the human tasks involved. With Baseline the science of ergonomics is used creatively to help data processing staff work more comfortably and therefore more productively."

Particular attention has been given to safety, neatness and convenience. All electrical wiring and machine connecting leads can be contained within the desks, with mains cable connection to the rear.

W. H. Deane (High Wycombe) Ltd (CW), Wooburn Green, High Wycombe, Bucks. HP10 0HH Tel: (06285) 25001/7.

One of Datacare Business Systems' fire resistant safes.

Protecting microfilm

ALTHOUGH microfilm has many benefits in terms of space-saving and easy access, it is easily damaged, particularly by heat. While paper ignites at a temperature of 350°F, microfilm can be damaged beyond repair at less than half that temperature.

With this danger in mind, Datacare Business Systems has launched a new range of fire-resistant safes designed to store safely all kinds of microfilm media.

There are six sizes of safe available and a wide choice of modular internal fittings, allowing the secure sterage of any mix of microfiche, jackets or roll film. Each model is designed to protect the contents for up to two hours from external temperatures of 1000°C, and all have passed independent laboratory tests in Europe and the US.

Datacare Business Systems (CW), 7 Wine Office Court, London EC4A 3BY. Tel: 01-583 2211.

Daisy wheel printer costs 'halved'

MARKING its entry to the data and word processing markets, the Smith-Corona Group of SCM Corporation has introduced a full character daisy wheel printer that, it claims, retails for about half the price of other daisy wheel printers.

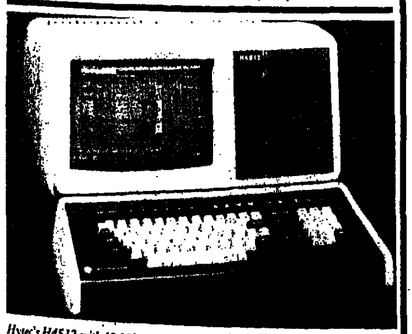
The company designed its new text printer, the Smith-Corona TP-1, to be compatible with major desk-top microcomputer systems, and word processing systems.

In addition to being microprocessor controlled, TP-1 is compact, lightweight and has a small "footprint" allowing it to fit in places where some printers cannot.

Delivering a quality printout of fully formed characters at more than 140 words per minute, the TP-1 is available in two basic versions: a 10-pitch, which gives a 105 character line; or a 12-pitch version, which provides a printable line length of 126 characters. Two standard interfaces are available, a Centronics compatible parallel interface and an RS232C serial interface.

The TP-1 offers what is said to be an easy system of loading ribbon cassettes; a low cost daisy printwheel rather than single element ball or cylindrical print element; an auto-underline capability which enables the printer to underline words or strings of characters automatically; and a programmable margin system which allows the user to set and/or release margins under program control.

Smith-Corona Typewriters (CW), SCM House, North Circular Road, Stonebridge Park, London NW10 7SS.



Hytec's H4512 with 12 M bytes hard disc.

Unit has fitted disc

A WORKSTATION which can be fitted with either a five Mbytes (H4505) or 12 Mbytes (H4512) integrated Winchester hard disc and additional half or one Mbyte of floppy disc is available from Hytec. Both are ICL-compatible.

The workstation is a complete unit containing the fixed disc as a sealed unit in addition to a standard floppy disc drive. This works out about £1,000 cheaper than buying terminal and hard disc system separately, claims Hytec.

The advantage of the integrated hard disc system over a conventional terminal and peripheral is that it provides the operator with easily accessible storage, says the company. The floppy disc drive may be also used conventionally for back-up.

Hytec is presently working on the development of a 25 Mbyte and 45 Mbyte integrated terminal which should be available towards the end of the year.

Hytec Microsystems (CW), 9 West Way, Oxford, OX2 0JB. Tel: (0865) 726644/5/6.

BT launches telex terminal with visual text display

A MICROPROCESSOR controlled telex terminal with a visual display screen as well as a conventional printer has been launched by British Telecom for the public telex network.

Called the Cheetah, it augments BT's new generation of electronic teleprinters. Facilities include off-line message preparation, where outgoing messages are typed into an electronic store and presented to the operator on the visual display screen, while the teleprinter can continue to receive incoming messages or transmit other outgoing messages without interrupting the operator's work.

Operators can insert, correct or delete parts of messages entered from the keyboard or from paper tape into store, and text is automatically closed up to eliminate gaps. "Word wrap" allows operators to type freely disregarding ends of lines; the text is automatically adjusted to avoid split words.

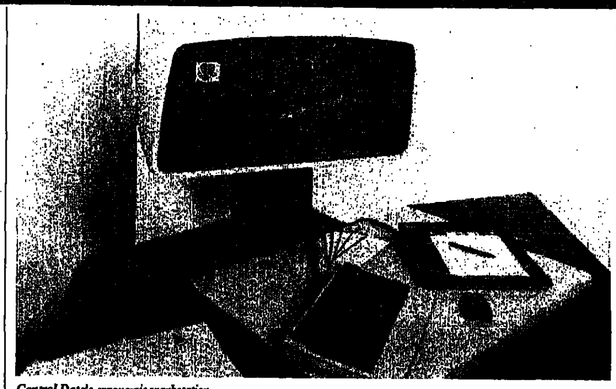
Stored messages can be transmitted at pre-set times without further operator action. If the distant machine is busy, Cheetah makes a number of further attempts. The same messsge can also be sent to many destinations.

Up to 16 telex numbers can be stored in Cheetah's memory, and called automatically in response to a one-character code. The codes can also be used in automatic operation.

The Cheetah can be supplied with a memory of 16,000 or 32,000 characters, equivalent to 2,250 or 4,500 words.

The new teleprinter is being supplied initially in Telecom's London and Midlands regions and will become available elsewhere in the UK later in the year. It costs £2,380 (£2,560 with 32K memory) plus an installation charge of £120 and a quarterly rental of £45. Prices exclude VAT.

British Telecom (CW), 2-12 Gresham Street, London EC2 7AG. Tel: 01-357 3814.



Control Data's ergonomic workstation.

Ergonomic CAD/CAM workstation

CONTROL Data's ergonomic workstation (EWS) enables engineers and designers to use CAD/CAM programs. It has a display which the operator can adjust to any suitable position by remote control.

Two modes of operation are available on the EWS: Native Mode utilising Control Data CD2000 design and draughting software, and 401X emulation allowing programs written for Tektronix 401X equipment to be used.

The EWS has dual screens mounted in the CRT enclosure. The graphics display screen is a high resolution 25 inch CRT with 4K × 3K pixels.

Control Data (CW), 179-199 Shaftesbury Avenue, London WC2. Tel: 01-240 3400.

Text store for Sigma series

SIGMA Electronics Systems has introduced a text store module for the company's Series 5000 range of high resolution raster graphics terminals and OEM generators. The single board module can hold four pages of text.

Text store modules are interchangeable with pixel stores, allowing the user to configure a terminal or generator with the graphics/text mix to suit the application. Previously users have had to use up pixel store for text display tasks.

The module holds one page of scrolling text store for system interaction and three pages of cursor addressable text for tabular information display. This allows an alphanumeric display to be updated. The facility is useful in control and monitoring applications in addition to the standard applications such as part lists in a CAD/CAM environment.

Sigma Electronic Systems (CW), Sigma House, North Heath Lane, Horsham, Sussex RH12 4UZ. Tel: Horsham (0403) 50445.

Uninterruptible power supply is portable

COMPEC Systems has developed a portable uninterruptible power supply and regulator (UPSAR) for computer systems and other equipment where a stable and continuous power supply is needed.

UPSAR, a solid state device, generates a clean 240 volts 50Hz sine wave electricity supply that is independent of the mains electricity supply, giving a continuous spike free, solid foundation to any computer system. It can be used with mains input voltages from 0-270 volts ac at frequencies from 40 Hz to 70 Hz, and output voltages from 110 volts to 240 volts. Voltage stability on the output is within +/– 1% from no load to full load, frequency stability is +/– 0.1% and total harmonic distortion is 2%.

The device incorporates internal maintenance-free batteries which provide the system with the necessary electricity in the event of either momentary power fluctuations or a full mains failure. The output can provide substantial initial surge to start ac inductance motors with inrush currents up to 500% of nominal output at various voltages and frequencies.

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OFFICE AUTOMATION – 1

Kicking off our four-page feature, David Henson debunks some of the high- faluting claims that are being made

Forget the 'Paperless Office': it just isn't going to happen

RARELY does one see a business paper nowadays without a reference to "The Electronic Office", "The Office of the Future" or "The Paperless Office".

The last of these hackneyed phrases is quite clearly meaningless. No one in the foreseeable future would take down a telephone message on anything else but a scrap of paper or go to a meeting without paper-written minutes in his hand. And any office in 1984 will be an "Office of the Future" viewed from 1982.

Of course more electronic equipment will appear in more offices – most of it an electronic manifestation of existing time-proven apparatus. The abacus, although it never assumed the importance in the West that it did in the Orient, was a marvellous technological development. Its calculating function has gradually been taken over by mechanical, then electro-mechanical and now electronic devices.

There has always been a need in offices for document duplication. Poor old Bob Cratchit had to copy letters in longhand; as many copies as Scrooge demanded. Along came carbon paper (the office aid par excellence); then the electromechanical copier and now the high-speed, porgrammable machine.

Similarly, the acceptability of word processors has been due to their elimination of a nasty office chore – typing the same old form or letter over and over again.

Far too many high-faluting devices, especially in data communications, suggest a radical change in the office environment is necessary.

For example: an export manager talking into a tube in his office (which happens to be the sitting-room) to his secretary seated in front of a VDU (which happens to be in her bed-sitting room) who immediately prepares copy electronically, scans it for errors, returns to her boss for checking and electronic signing, distributes copies as directed and files in a memory bank.

The secretary then checks the FT index on the screen, selects the important changes, alerts her boss (still at home), communicates via VDU with the stockbroker . . . It's a scenario that just won't happen but, my word, a lot of nonsense about "The Office of the Future" is rather like it.

Remember the attempt in Japan years ago to persuade home viewers to read a newspaper on a TV screen in their living-room? It failed because the electronic "jump" was far too radical. It is an essential educational principle to move from the known to the unknown; similarly office workers will not accept an innovation which appears to them unconnected with well-tried techniques.

Currently inter-office communication is dominated by three different media, each serving its purpose well: post, telephone and telex. Obviously all these have their disadvantages and I suggest that a fertile, acceptable field for electronic innovation is to help remove irritations rather than dash into the expensive unknown.

Letter post is a marvellous method of communicating. It's user friendly, there are an enormous number of input points, size and contents of message can be determined by the user and it relies on skills universally taught to every six-year-old and which once learnt, are rarely forgotten.

What is more, there is no need for a universal language – two Chinese people in Cornwall can communicate in Mandarin via letter post if they have a few English address labels. How many electronic communications systems can boast all this?

However, the post is too slow for many business purposes; if competitors use motor cycle delivery for the day's returns you must try to go one better. Post goes to a place rather than a person and, greatest disadvantage of all nowadays, it is much too expensive; not so much the cost of a stamp but the time consuming business of document preparation.

Electronic mail, if it is to have any validity at all, must address itself to this problem. It's not electronic speed-ups that are all-important, but electronic cost cuts.

The telephone, too, is an excellent instrument. Nothing is so interactive and there is an enormous installed user base but, unlike letter post, there is no hard copy, and it is a system that needs planning.

There must be enough lines to accommodate users, and the service cannot be used for worldwide

Is the post user-friendly?

communication without checking time zones. Here, of course, the electronic mail-box – operating on the good old principle of improving the extant, the proven, the acceptable – has already made good progress.

But, like letter post, telephones are expensive. One import-export company estimates that telephone bills now account for 28% of office costs.

Telex has the great advantage over telephone of being able to deliver hard copy messages unattended, out-of-hours, so it is excellent for international inter-time zone communications.

However, it is only found in business circles, and there are serious technical disadvantages. It can take hours to prepare a longish message, error detection and recovery is bad, restricted character sets (captials only) limit sophisticated use, and document width may not exceed more than 65 characters a line.

But the most irritating aspect of the trinity of post, telephone and telex is that until recently they were all controlled by one godhead in this country. And in most of the rest of the world a single authority, the national PTT, remains responsible for all three. Thus, no inter-service competition and no incentive to produce more reliable services.

Electronics is not going to replace post, telephone and telex for the dissemination of information.

But there is not much doubt all three can be improved, and in a few limited cases cost-effective alternatives supplied.

Communications, of which data communications is merely one variety, is concerned with shifting blocks of words and figures from one site to another. What costs money is the preparation of such blocks and their checking, amendment and subsequent duplication.

For use inside a building, or throughout a factory complex, an electronic mail system can be designed and installed with minimal regard to the outside world. But it is doubtful whether such a project would be cost effective.

A move away from an individual environment necessitates interfacing with a system which may not have been designed to your liking – in fact it almost certainly will not have been.

Most electronic communication systems use the public telephone network via a modem – and right away there are problems! Telephone networks are systems for analogue signals and human behaviour patterns, while datacoms are digital and have a totally different pattern thus a conversion-box, a modem is essential, and compromise solutions forced.

Unfortunately, although CCITT in Europe and EIA is the US have developed standards for digital analogue conversion, there is no single standard for a modem. The trouble comes when a cheap, low-speed modem, which is all that is needed for a teleprinter, is expected to work on higher activity equipment.

Anyone with a lot of electronic apparatus and thus several modems (perhaps from different suppliers) discovers that the solution can be very expensive. To talk to each other machines need a common language and a multiplicity of incompatible equipment makes this impossible.

What happens is that the big company that supplies the basic equipment tries to get a corner on peripherals too because small, independent manufacturers find it difficult, if not impossible, to prepare emulators quickly enough to grab a slice of the market. Customers are understandably nervous of buying probable incompatibles.

Significantly, IBM 2780 is possibly the commonest data language and is now supported by a host of peripheral electronic devices: word processors, minicomputers, intelligent copiers, etc.

One common, or standard, language would obviously be a universal advantage in electronic communication. Companies lacking the clout to impose their own standard have to emulate a host of bigger machines at considerable outpouring of R&D expenditure; costs which are inevitably passed on to the user.

The solution lies with the national PTTs. Unfortunately most of these are trying to cope with problems caused by using modems on a system defined for speech, not data communications. Whereas telephone line requirements for the former between, say, London and Birmingham can be estimated reasonably accurately, the same does not apply to datacoms. Users keep a data line busy for much longer and demand fluctuates, so under-capacity is difficult to forecast.

British Telecom could provide either a better telephone service or a totally separate data communications network. But in fact, it is trying to implement both solutions. The problem is that agreement on the specification of any such new system is extremely time consuming and it takes years for a solution to be defined well enough for real work to commence.

An equally long interval follows when the value of installed equipment and capital costs of new equipment becomes a political hot potato. In the monopoly situation there is little incentive to respond to such demands at anything like the speed of development of new systems. With no common standards, the aspiring manufacturer simply has to invent his own.

Currently there are about 50 word processing systems in the UK marketplace. It cannot be in the user's interest that few of them are compatible either with each other or with standard equipment like telex.

In 1983 British Telecom has promised it will issue a standard declaring that if a supplier uses the teletex protocol BT will support it. The value of this to the business community will be enormous. Teletex outpaces telex, enables telex users to employ different characters, provide first-rate error checks and has fewer restrictions on document size.

Teletex, thus, is an excellent example of a worthwhile, cost effective advance in office technology electronics being used to overcome the disadvantages of a proven, successful communications medium. The word processor operator prepares a document in normal page format using all the available characters and it is sent without an intermediate operation – no more punching holes in bits of tape.

Of course this already happens on some suppliers' equipment, but how much more will the user's interest be served when no one manufactures a word processor without incorporating the teletex standard. The user can choose a machine without fear of incompatibility.

It is important, too, that an international body has defined the standard: it is vital for users that manufacturers should not impose their standard on the market.

> **'If there is anything that has given office automation a bad name it is local area networks'**

If there is anything that has given office automation a bad name it is local area networks. Most of them are untried, except in limited experimental circumstances; there is no common standard; and choosing the "wrong" system prematurely may ensnare the unwary. Users will find themselves locked into one supplier's net. Retreat will be impossibly expensive, and they will find themselves at the mercy of one type of "spider".

True, IEEE in the US is trying to define an open standard for local area networks, but it will take some time yet. So too will the work of the International Standards Organisation on OSI (Open Standards Interconnection) for all electronic equipment.

More office managers should spend more time defining what they really need. The current "Keeping up with office automation Jones" is just as ludicrous as the '60s "Keeping up with computer Jones". The buyer of equipment must always ask: "What do I want to do with this device?"

Potential users have often failed to ask themselves the basic questions and have been confused by the high technology offerings presented to them. The real area of concern should be to improve the lot of the staff, who have to do the work after all.

It is asking for trouble to buy office automation machines which will be unacceptable to tried and trusted staff. The really successful installations are those where disadvantages of existing apparatus become the starting point for the newcomer.

David Henson is a product consultant with word processor manufacturer Wordplex.

Will electronic mail ever replace the Post Office?

OFFICE AUTOMATION – 2

Philip Conford hits out at the 'technological Jesuits' whose awareness programmes have overtones of propaganda

Government is preaching Progress through Revolution

IF anyone does not yet know that 1982 is Information Technology Year, then the enormous campaign currently being mounted by the Department of Industry (DoI) must be failing. The government has appointed Kenneth Baker Minister for Information Technology, or IT (sic), and is determined to convey to all branches of trade and industry, to the general public, and particularly to schoolchildren, the importance of this rapidly developing aspect of the economy.

Eighty million pounds of public money has been set aside for industrial research on IT; pantechnicons are touring the country with IT exhibitions; schools are being encouraged to install microcomputers; the BBC is broadcasting special programmes about computers; training courses in IT for management are being run; major conferences have been organised; the Science Museum is putting on an IT exhibition during the summer; and – perhaps the highlight of the whole extravaganza – the Post Office will be issuing two commemorative IT stamps in September.

In addition to all this, the DoI has produced various pamphlets and leaflets which aim to explain the importance of IT, and to reassure us about the impact it will have on our lives; this impact being, as one would expect, entirely beneficial.

According to the booklet Information Technology: The Age of Electronic Information, Britain is at an advantage in the field of IT because it is "a respected source of all kinds of information" (presumably an oblique reference to the integrity of the BBC), and has "a universally understood mother tongue in which to disseminate it".

A look at the use made of this mother tongue in the IT campaign literature offers an instructive example of the language of propaganda.

Of course, the concept of "propaganda" appears nowhere in the DoI's literature, even though Kenneth Baker, in an interview in the *Radio Times* (January 9-15, 1982) speaks of changing the attitudes of the young, who form "the most receptive audience". Like some technological Jesuit, Baker wants to catch the 9 to 19-year-olds so that they will be his for life.

Since such a process of influencing the young must not be seen as something with undesirable overtones like "propaganda", the DoI prefers the quasi-religious concept of "awareness". It is not a case of information of dubious validity being pushed at reluctant recipients; instead the process is conceived of as one whereby a miasma of ignorance is dispelled, revealing a new dimension to life.

The various events detailed above are described as "awareness activities". Teachers must develop "software and computer awareness", since their pupils are, according to Baker, "more electronically aware" than most adults. This awareness is demonstrated by their skill at playing Space Invaders, something which Baker describes, with a certain lack of positive commitment, as "not entirely bad".

Baker aboard the MAP (Microelectronics Applications Programme) Micro Train.

He also speaks of our country's "missionary role"; but, perhaps feeling the need for an image less puritanical, switches metaphors immediately by going on to say that "We have to get Britain's act together in this field". Appropriately, The Age of Electronic Information speaks of the impact of microelectronics as "never less than dramatic".

Still the most popular image, though, for urging us into the future, is the stale, nineteenth-century idea of Progress through Revolution. Microelectronics will "revolutionise the handling, processing and storing of information" as "development pursues development", thereby becoming "the engine of economic growth".

Helping the revolution arrive as soon as possible, the government is organising "a determined and sustained push" to "make the initial breakthrough".

Uneasily aware that such language is hackneyed, the booklet assures us that in this particular case its use is entirely justified. The anonymous writers stress that they really mean what they say, and our scepticism is disarmed.

This picture of the world which will result from the microelectronic revolution is a fantasy, offering all the putative benefits of technology, and ignoring the real disadvantages. There will be "a profound improvement in business efficiency", and a securing of "jobs for the future".

The writers of the leaflets like the concept of security, which calms fears about the revolutionary nature of the change we will have to face. IT simultaneously offers the excitement of rapid change, and freedom from the worry that the change will have any effect on us.

The advantages of IT are innumerable: greater security (again) in banks will make robbery harder. Banks will offer customers "speedy attention, reliable advice, and secure and convenient safeguarding of their money". In shops, electronic methods will improve stock control, so that "there will be fewer delays, fewer needed items missing from the shelves . . ."

Magnetic cards will enable buyers to make purchases without any cash changing hands – amounts will be debited from the customer's bank account. This process will be "speedy, accurate and convenient".

Progress will march through the health service. Medical records will be electronically stored, "so improving the treatment of patients". Hospital administration will become "more effective", so that patients can have "the best service".

The DoI wants to influence the attitudes of the young and their teachers, so it is predictable that some of the greatest claims are made in the sphere of education. Unequivocally, the leaflet on The Uses of Information Technology in Schools asserts: "There is no subject that cannot be made easier by an Information Technology approach". Electronic games "can aid comprehension"; "Computers are being used to diagnose spelling problems"; and "Slow learners now have a new teaching aid, resourceful and with infinite patience!"

One leaflet speaks of the "jargon-free language" adopted in the various publications. They don't use the daunting specialist terminology of the computer expert, preferring a bluff jocularity, with liberal use of exclamation marks.

The emphasis is on familiarity. The Age of Electronic Information reconciles us to IT by ingenious sleight-of-hand: having demonstrated (without much difficulty) that IT deals with information, it proceeds to define "information" as love used to be defined – "the thing that makes the world go round". And if that is too vague, too romantic, it is more materialistically "the food of progress . . . the basic staple of learning, work and leisure."

So there is nothing to be frightened of. Or, more accurately, we are not *told* about anything of which we need to be frightened. The language of the DoI's propaganda remains jargon-free only at the price of vacuity. Since microelectronics is a specialised branch of science, any information about it must of necessity involve specialised language, or jargon. Wanting to make the new developments comfortingly acceptable, the language of the campaign material has to be diffuse, suggestive, nebulous.

And what of the youngsters whose attitudes are to be moulded by IT Year 1982? "Education is about the future," claims the DoI.

But it is only partly about the future. It is also about handing on the achievements of the past, and creating a sense of values, an ability to make choices.

Ironically, the government's propaganda, seeing children as merely "tomorrow's workforce", ignores the importance of the past, and anticipates "a new keyboard generation, nursed on pocket calculators and electronic games".

No doubt they will be told that they must "educate themselves for leisure". But the dream of universal leisure is the nightmare of mass unemployment. Believing that we can be satisfied by gadgetry, material comfort, and idleness, the DoI works with a completely inadequate conception of what people need for a fully human existence.

The Jesuits in the government and the microelectronics industry may succeed for a time in capturing the minds of the young, and persuading them to accept a role of functionless passivity. But the exaggerated claims of the DoI's leaflets will sooner or later prove a bitter mockery to anyone who is duped into believing that the promised cornucopia will ever exist anywhere but in fantasy.

Philip Conford is a lecturer at the Chichester College of Technology.

"But this is my homework, Dad – Software analysis . . ."

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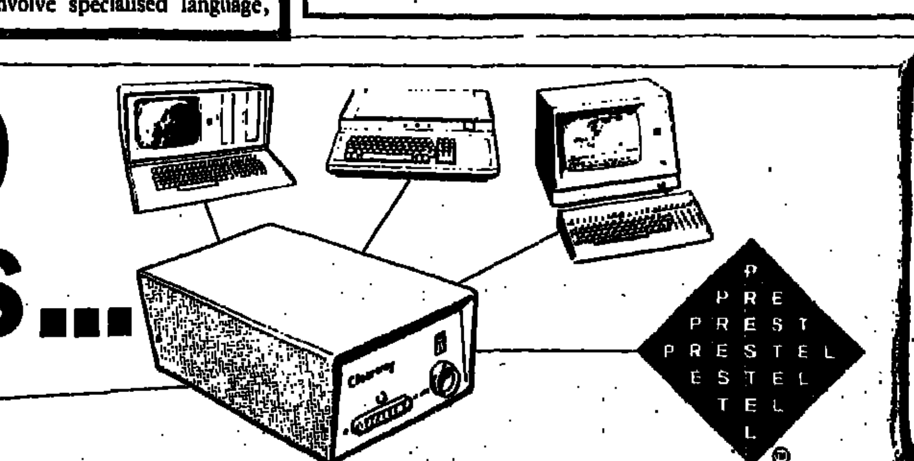

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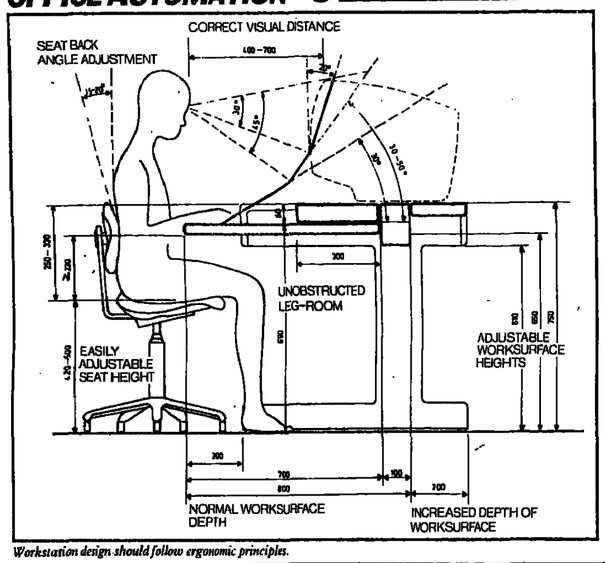

Workstation design should follow ergonomic principles.

Fitting equipment to the worker makes economic sense

Laurie Cocking puts forward his case for ergonomic considerations when implementing office automation

OVER the last 40 years British society has made great efforts to overcome the unsatisfactory working conditions associated with many industrial processes. Standards have been produced which either eliminate totally the risk elements of performing a task, or reduce them to a more acceptable level.

The technological revolution has shifted much of the emphasis in industrial medicine to the office environment. It is estimated that whereas 60 per cent of the total British workforce in the 1950s and 1960s were employed in industrial processes, by the end of the '80s, 60 per cent of the total workforce will comprise sedentary workers.

Most of us have been assailed with publicity laying claims to products which are the most ergonomic for this use or that. But precisely what "ergonomic" means when related specifically to a product usually defies clear understanding.

Ergonomics is relatively new and by the very nature of ergonomics, explanations covering ergonomic benefits of a design are usually complex.

Ergonomics is the study of man's physical, psychological and anatomical relationship to his working environment. The study of ergonomics is reputed to have begun as part of a military project during World War II, creating seating for aircraft and tanks and for women on factory assembly lines, where sitting on uncomfortable stools was found to impair efficiency. Simply by adding backs to their seats, productivity was reported to have increased by almost a third.

Seating has probably been influenced more by ergonomic studies than any of the other areas. The logic of this is easy to understand: half the average person's waking life is spent sitting and this leads to back problems for many people. Improvements in the design of seating have progressed more quickly than those in other areas of ergonomic study because the results are more easily marketed to a painfully aware population.

However, the best results of ergonomic seating design are slow to be applied to the working environment, and many companies using the most sophisticated office automation systems are still using and buying seating of antiquated and poor design which detracts from the productivity benefits of the new technology.

The economics of using a machine which will process information four times as quickly as previous methods is easy to justify. The increase of productivity to be gained from ergonomically designed seating is less easily quantified.

Many international companies are now studying better seating which relates to the use of computer equipment. They have to. The workers are beginning to complain because the automated office requires a worker to remain in a seated position for prolonged periods of high concentration.

Many studies have indicated that the glare from fluorescent strip lighting in areas where VDU screens are in use to a large extent, is the cause of greatest worker distress, and there is considerable bibliography to support this.

Recent developments have resulted in the introduction of indirect systems known as uplighters, which replace conventional ceiling lights. The light is reflected off a pale ceiling and is glare free. Although the technique has been around for a long time, it has only recently reached a stage of development which enables it to be applied as a total replacement to conventional lighting systems in a wide variety of office environments.

During the coming years this will probably be one of the most significant developments affecting the office environment as it can be easy and economical to apply. It is energy saving and at the same time is an environmentally more satisfactory way to light an office.

In 1977 two copy editors at the New York Times simultaneously developed cataracts after using VDUs for about a year. An investigation was made but the VDUs were cleared.

However, in the last 12 months the National Institute for Occupational Safety and Health (NIOSH) was prompted to revive its interest and make a comparison study of cataract cases in users and non-users of VDUs, after two other VDU users at the Baltimore Sun had developed the same eye problems.

There is much bibliographical evidence to show that more serious consideration should be given to the positioning of screens. An elementary consideration is that of having too small a visual distance between the screen and the user – working with a VDU is equivalent to holding your face about two feet away from your TV screen several hours each day, five days a week.

> **'In the final analysis, it is market demand which will exert most influence...'**

It has been determined by established ergonomic study that the correct viewing distance of a screen should be between 40 and 70 centimetres, but as yet few people seem to implement the recommendations. Often this is due to other factors, such as keyboards being fixed to the screen or seats being used which do not give back-support when sitting upright.

VDU screens and keyboards should be selected for their ergonomic advantages. But the technical considerations of the equipment usually supersede the ergonomic considerations. Until equipment design achieves a considerably higher standard than at present, it is even more important that the supporting furniture is adapted to counteract what is often poor overall ergonomic design in the equipment.

It would be altruistic to imagine that a single organisation could provide a totally integrated product range. The skills and the market are too widespread to ensure competitive development on all fronts, but the ergonomic arguments are very strong for manufacturers in these fields to co-operate, to design and produce new products which contribute to the future wellbeing of sedentary workers.

However, in the final analysis it is market demand which will exert most influence on the decision whether or not to consider fully the medical aspects of office furniture and equipment and manufacture accordingly.

For the most part it must be left to the individuals responsible for introducing new technology into their working environments to determine the level of ergonomic standards they can afford. But sooner or later, through the natural desire that man has to improve his living conditions, manufacturers will be forced to improve products.

Happily, the value of comfort and health is something that we are all becoming much more aware of. We are unlikely to wait for the emergence of a VDU disease before we treat ergonomics seriously.

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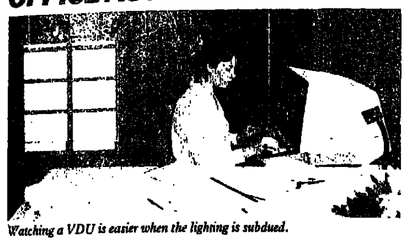


Watching a VDU is easier when the lighting is subdued.

Is your company ready for an electronic office, anyway?

Management must have specific guidelines about the cost of refurbishing an office when embarking on automation, argues Bernard Dukes

IT is tempting to view the electronic office as a means of throwing out filing cabinets and mail trolleys. But the emergence of office machinery from the cloistered calm of the computer room into the environment of the general office creates its own problems which will need careful examination if this trend is not to be delayed by a popular backlash of opinion.

Clearly, there are major social questions which investment in machinery is going to pose, particularly since this investment can only be justified by savings in the wages bill. Equally, there are going to be questions asked of our buildings and builders to enable companies to absorb the new requirements of the office.

It may be that the original introduction of the computer into the office was more easily achieved because the system was surrounded by an aura of novelty, bringing prestige to the company merely by virtue of being owned by it.

The early computer installations were the cathedrals of commercial investment, and little was spared to ensure that they functioned correctly. Board directors were unable to challenge the expertise of the computer experts, and unwilling to accept the responsibility of vetoing any request, for fear of being blamed for the failure of their investment.

> **'It is a sad fact of management by budgetary control that existing extravagances are more acceptable than changes or additions'**

It is not so with the electronic office. Directors and senior management understand more clearly now what offices are about and have specific guidelines from their professional advisers for the cost of fitting out or refurbishment.

It is a sad fact of management by budgetary control that it is easier to accept existing extravagances contained within the budget than to accept changes or additions, however meritorious. The systems manager's demand for a raised floor in the computer room may well meet with approval, but this success will not usually stretch to influencing the design of the general office space.

In consequence, a cheaper, more popular but less effective solution to the problems of housing cabling, such as installation of floor trunking at two or even three metre centres, or floor boxes on a two metre grid, is the best that is likely to be achieved.

A popular scientific journal reported late last year that the Ministry of Information had abandoned one of its showpiece offices within its Millbank headquarters because it could not accommodate the necessary cabling. And even if it had been able to do so within the type of system just described, there would undoubtedly have been a multiplicity of trailing flexes. Safety statistics would probably show that more accidents happen in offices from tripping over trailing flexes than from any other single cause.

The first key to the successful marketing of the electronic office rests with the ability of the customer to house the cabling that enables it to work.

This may be a short-term problem if a national or internationally agreed standard for a network system emerges. It may be possible then to provide what in an ideal world all clients would prefer: a single circuit running round the office with as many points as they need for power or telephones, into which they could easily plug any machine they want to buy, without the need for an interface.

Until that happens, it may be wise for equipment manufacturers and the end user to undertake a full appreciation of the existing and potential cabling problems inherent in every installation, before the moment of sale, otherwise the speed at which the electronic office is going to be accepted will be affected by the less than desirable results of cable mismanagement.

> **'The effects of power failure mean that paper records will not be eliminated for a long time'**

Clearly, too, management is going to have to take decisions about standby power and duplicate machines. In a predominantly manual system, the worst effects of power failure can be overcome by wearing an overcoat and lighting a candle. This is not an option for the operator of an electronic office, where power in general, or the central processor in particular, fails.

For this reason, many have suggested that it will be a long time before paper records are eliminated from the office. It would seem to be a defeat to admit it should be so.

There are other ways in which those who market machinery and services for the electronic office have to be careful not to foul the nest. It is no great solace to those who complain of headaches and eyestrain as a result of using VDUs, that in most cases the use of the machines is only revealing defective eyesight rather than creating it.

There is, of course, an inherent paradox in this type of workstation: watching a television screen is easier when the lighting is subdued, while reading paper needs a reasonable amount of light.

It is the responsibility of the manufacturer to ensure that the reflectivity of the keyboard and the screen, and the stability and format of the display bear critical examination. If this is achieved, then many of the problems facing the lighting designer are removed. But he still needs to ensure that machines are positioned carefully to avoid window reflections, one of the more commonly occurring problems.

In terms of artificial lighting, one of the more acceptable schemes for use with the VDU is the uplighter. In these days of excessive energy consciousness, attempts are made to sell the product in terms of its economic consumption.

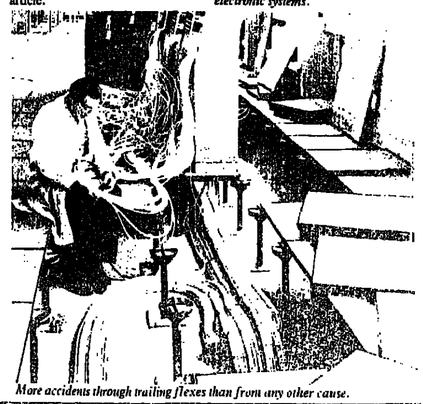
These claims are perhaps doubtful, but the product designed for this purpose is good enough to stand on its own merits. Certainly it does give "sufficient and suitable" illumination, in the words of the Offices, Shops and Railway Premises Act.

Wider social implications arise from the electronic office. The ability to communicate internally and externally raises the question of the need for large central headquarters offices.

The trade unions are already trying to ensure that ergonomic standards are introduced which minimise the amount of unemployment created. These are questions beyond the scope of this article.

We cannot, however, sell our product and services in a vacuum. Only by appreciating the problems can we hope to avoid prejudicing the development of our market.

The author is managing director of Dukes Electrical, a contractor specialising in the installation of electronic systems.



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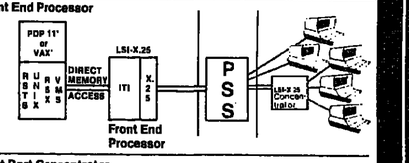

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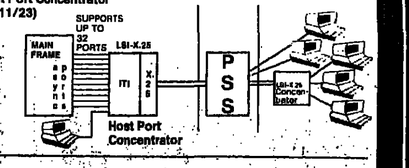

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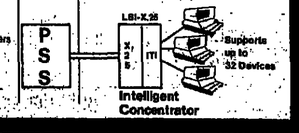

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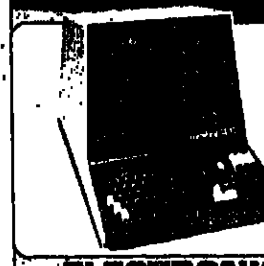

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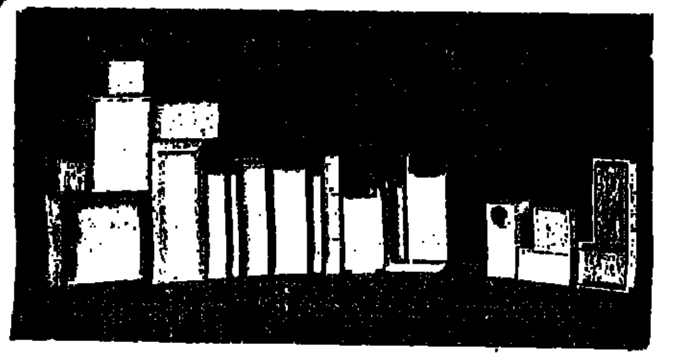

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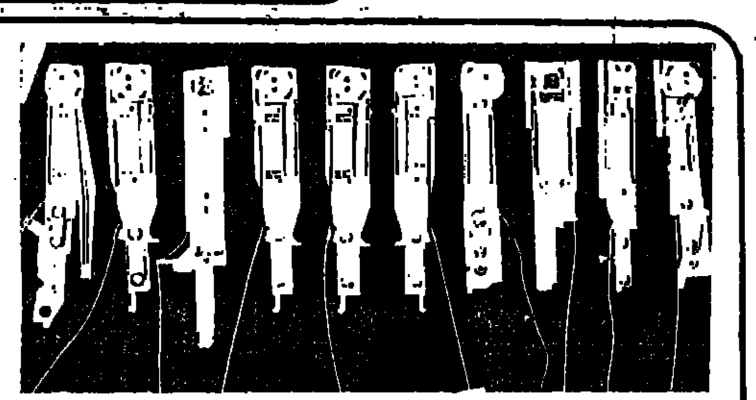

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Hertfordshire Systems company require person with at least three years' hardware selling experience, to sell hardware, software and turnkey packages.

Software Engineers: £15,000+
Middlesex/London-based company requires degree level person to work in development applications and support. Good micro-software, small systems design and high-level language experience necessary.

Software Sales: £neg. + Com. + Car
Middlesex software house require experienced sales people up to 30 years, with at least two years' experience, and a good knowledge of scientific technology.

In House/Site Engineer: £13K + Car
Middlesex-based systems house require DEC engineers, 30 years with at least three years' DEC exp. Micro exp. also very useful as is communications/process control. Applicants must have Assembler and one high level skill, such as RTL II Pascal or CORAL.
Work is centred around the engineering, defence and network field.

Field Engineers: £7.5k + Choice of Car
Bucks.-based systems co require engineers with at least two years' experience on Minis/Micros to work on floppy, hard and fixed discs machines and all relevant peripherals..
Phone Bill on:
01-491 3438, between 9.30am and 5.30pm.

(0046)

NETWORK
18 James Street
LONDON W1

myriad

A Challenging and Interesting Programmer/Analyst Role

Wembley Neg.c.£8,500

We are seeking an experienced Programmer who has had some exposure also in the ***Programmer/Analyst*** *role. He/she should have sound commercial applications experience, with some knowledge of Sales Order Processing or Stock Control systems. On-line programming experience, using* ***COBOL****, is necessary. The client expects the person appointed to be capable of* ***working with users****, and making relevant technical decisions.*

Our client, a world leader in the supply of scientific equipment which exports some 50% of its turnover, is developing its existing ICL-based Sales Order Processing, Stock Control and Sales Ledger systems. Additionally — and with exciting experience for the right person — our client is introducing hardware and software, ***including TOTAL database****, from a major US manufacturer, as part of a major programme of rationalising, expanding and enhancing systems.*

The person appointed will play a ***leading role*** *in the enhancement of the existing systems and will take this experience across to the development of new systems.* ***Relevant technical training*** *will be provided as required. Contact our London office quoting reference* ***E1/2406*** *and learn more of this exciting opportunity.*

Myriad Appointments Limited
30 Fleet Street, London EC4Y 1AA Telephone: 01-353 0981 24 hours
50a London Street, Reading, Berkshire RG1 4SQ Telephone: Reading (0734) 585802 24 hours

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myriad

Analysts and Programmers

Near Waterloo **£8,000-£12,000**

Our client, a major UK organisation, is seeking career-minded and experienced systems and programming personnel to enhance their project teams currently engaged on an extensive systems development programme.

Applications are invited from professionals with at least three years' data processing experience gained in the development of commercial systems preferably working on IBM or ICL equipment.

This is an excellent opportunity to work on major development of on-line/real-time and database systems. A competitive starting salary is offered, together with generous other benefits. There is full scope for career advancement and further training is positively encouraged.

Ref: SE2406

Programmers and Programmer/Analysts

Central London **£8,500-£11,500**

Our client is seeking to recruit young, enthusiastic and well-motivated Programmers and Programmer/Analysts, wishing to advance their careers in a technically stimulating and challenging environment.

These positions offer the opportunities to:

- ★ Develop new systems, including 'THE OFFICE OF THE FUTURE'
- ★ Work on IBM 4300 and a mini network
- ★ Progress rapidly to analysis and project responsibilities

Ideally, applicants will have at least two years' COBOL experience preferably gained within an IBM/ICL environment. The company offers excellent starting salaries and a range of substantial fringe benefits.

Ref: C2406

Programmers to Project Leaders

Essex **£7,000-£11,000**

Our client has outstanding openings for D.P. professionals who wish to further their career on an interesting variety of applications.

Vacancies range from PROGRAMMERS to SENIOR ANALYST/PROGRAMMERS and PROJECT LEADERS. Successful candidates will work within a stimulating and professional environment using advanced techniques on a range of projects.

PROGRAMMERS should have a minimum of eighteen months' COBOL programming.

ANALYST/PROGRAMMERS should have a minimum of two years' experience. These positions will appeal to Senior Programmers seeking a move to systems analysis.

PROJECT LEADERS should be capable of designing and controlling projects from feasibility to implementation.

The company has an excellent record of growth and, in addition to excellent conditions of employment, offers a secure and progressive future.

Ref: E2406

Systems Analyst seeking project responsibility?

W. London/Middx. **Move to five figures**

A Systems Analyst, seeking project responsibility on a major business system, is now required to augment our clients new project development.

In order to integrate new design concepts with existing on-line applications, the successful applicant will need to possess a strong business awareness and the ability to relate confidently to user personnel. Offering the opportunity to establish your career, this position requires initiative, good liaison qualities and the experience of previous project success.

Joining a professional business environment, where a powerful IBM mainframe is utilised, a full range of company benefits including pension scheme and life assurance accompany this opportunity.

Ref: W12406

Myriad Appointments Limited
30 Fleet Street, London EC4Y 1AA Telephone: 01-353 0981 24 hours
50a London Street, Reading, Berkshire RG1 4SQ Telephone: Reading (0734) 585802 24 hours

COMPUTER AUDIT INTERNATIONAL TRAVEL

£14,000 TAX ADV. **80% TRAVEL**

Our client is one of the world's largest companies operating in every continent.

Their corporate review and operational audit teams carry out a wide range of investigations and management audits within the manufacturing, marketing, distribution, administration and accounting functions.

This position calls for an EDP specialist who will enjoy a high degree of travel whilst performing **EDP test and interrogation audits,** training junior auditors and **liaising with management** on EDP problems.

An excellent salary and benefits package is available including full living expenses.

Candidates aged 24-27 should have **good EDP exposure** preferable gained within a large company environment.

Interested applicants should contact **Robin McWilliams** on **01-242-0965** or write to him at 31, Southampton Row, London WC1B 5HY.

MP

Michael Page Partnership
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SOFTWARE and HARDWARE AUTHORS

with experience in one or more of the following areas:

- **small business system applications**
- **telecommunications**
- **digital electronics**
- **Z80 based micros** under **CP/M with BASIC** and/or **PASCAL**
- **Computer Aided Instruction/ Learning**
- **'electronic offices'**

These positions would suit **analysts** and **programmers** or **engineers** with a flair for writing good documentation

Take this opportunity to discuss these and other requirements by phoning Mark Clifford or Edith Watson on (0462) 57141 or write to:
Marketing and Recruitment Department
Industrial Artists Limited,
21 Bancroft, Hitchin,
Hertfordshire. SG5 1JP

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(0011)

Computer staff at the British Library

The British Library's London-based Computing and Telecommunications Branch supports a wide range of computing activities together with the BLAISE online information retrieval and cataloguing services for external users.

Current systems are based on IBM 370 (PL1 and Assembler), ICL 2904, local minicomputers and microcomputer intelligent terminals.

SENIOR SYSTEMS ANALYSTS (Ref 26/724)

We require two experienced systems analysts to work on the investigation and design of current and future systems, and to oversee systems testing and implementation.

Applicants should preferably have a good knowledge of library and information science work. Familiarity with library automation or information retrieval systems, together with a detailed knowledge of computing, in an online environment, would be advantageous.

ANALYST PROGRAMMERS (Ref 26/725)

We also have vacancies for two experienced analyst programmers who should have a sound knowledge of computing, and programming experience in one or more appropriate languages on the above (or similar) hardware. Experience with information retrieval techniques, library automation, communication software, would be advantageous.

Salaries for all four posts are from £8,909 to £10,845, inclusive of London Weighting allowance.

BL

For an application form please contact Marie Loftus, The British Library (Personnel), 2 Sheraton Street, London W1V 4BH; telephone 01-636 1544 ext 514. Please quote ref number. Forms must be returned by 7 July.

Computer Service Engineers

minicomputer systems

Our client is a significant American manufacturer of minicomputers which incorporate a sophistication of technology which is the envy of the industry. Very rapid expansion of this service orientated company has created an opportunity for experienced customer service engineers to join a highly talented team which provides hardware field service throughout Great Britain.

The requirement is for self-starters with a minimum of two years' experience in providing technical field service to minicomputer installations which include printer and disk devices. The ability to absorb training and the ambition to make a long-term successful career is vital.

Terms include a competitive salary, company car and those benefits associated with a highly successful, forward-looking, international organisation. Locations: London and South of England areas.

Applicants should write in complete confidence to: W. H. Pierce, Director, Peterson Davidson Limited, Elliott House, 28A Devonshire Street, London W1M 1RF.

PDL MANAGEMENT & EXECUTIVE SELECTION FOR HIGH TECHNOLOGY BUSINESS

NEW ZEALANDERS

Wilson-White Associates is one of New Zealand's leading EDP personnel consultancies.

New Zealanders intending returning home are invited to talk to Hector Guthrie, one of our consultants, to discuss probable openings, current salary structures and the New Zealand computing scene in general.

For further information phone 01-748 9034 or write to 55 Lonsdale Road, Barnes, London, SW13.

Consultants

To £15,000 p.a. + Car + Relocation

Manufacturing & Distribution Sector

Hampshire

Our client, a company specialising in systems products and services for the manufacturing and distribution sector, both in the U.K. and Europe, is seeking to recruit a number of additional Consultants. Sustained growth has generated these vacancies in the product development, training, installation and customer service groups.

You will be a mature systems professional able to demonstrate a successful track record in manufacturing and distribution and seeking a challenge where success is recognised and appropriately rewarded. The ability to fully protect the company's commercial interests whilst ensuring effective problem solutions for clients is essential. You will be between 28 and 40, a graduate or equivalent and will have obtained your experience with a systems house, a computer manufacturer or the management services division of a large computer user.

Salaries and benefits are highly competitive and geared to the attraction and retention of top quality staff.

Our client is enjoying significant growth and career prospects are excellent.

To apply please contact Brian Postles.

Ferguson Thorley Bowles Associates Limited
International Personnel Consultants
15 Clarence Street, Staines, Middlesex TW18 4SU
Telephone: Staines (0784) 59247. Telex: 8814148

Senior Analyst/Programmers Real-Time Systems

(Bracknell, Berkshire)

The Person

You should have a good degree in Computer Sciences and a minimum of two years' experience of real-time systems on mini-computers **PASCAL, CORAL, ALGOL or ASSEMBLER** experience is desirable and experience of program specification, design and systems analysis would be a definite advantage

The Job

You will design, implement and document real-time software to run on 16 bit microprocessor based autonomous and networked computer systems. The processor is the **Motorola 68000** device and development work will be on a **PDP11/44** and the Motorola development system. The systems will perform machine control and text and file handling operations on a scale normally associated with large multiple mini-computer installations. Systems will communicate via a high speed local area network

The Company

Protel has been established to exploit the field of computer technology primarily in support of the TV broadcast industry. The company can be expected to expand rapidly offering a real challenge and excellent career opportunities for those there at the start

The Rewards

A competitive salary commensurate with experience is offered coupled to regular reviews. The company offers all the usual benefits including profit share, private medical insurance, pension and flexible working hours. Coupled to this is the attraction of working in a small company environment and the interest which stems from continually expanding horizons.

Please apply to Mr. J W Anderson
Protel Computer Systems Limited
Alpha House, Terrace Road South,
Binfield, BRACKNELL, Berkshire RG12 5DN

protel

(0013)

ADVANCED DATA COMMUNICATIONS SOFTWARE DESIGN ENGINEERS AND PROGRAMMERS

Our client, having achieved considerable success in the field of high technology applied to the design and development of TELEX and PACKET SWITCHING equipments including TELETEX, now have a need to expand teams at all levels.

Candidates wishing to meet a new challenge in high technology should have a Real-time software background experience in one or more of the following:—

- X25 Communications
- High level languages
- Intel 8086 micro
- Assembler programming

Salaries:— Software designers with a min. 5 yrs exp. c. £11,000 p.a.
Programmers with 2yrs-4yrs. exp. £7,250-£9,700 p.a.

A superb relocation package is available to the South Coast. This is an excellent opportunity to work on the most advanced new equipments shortly to be launched on world markets.

For an application form write or phone John Davey on 01-464 0788

Thurloe Executive
Holwood House
Holwood Road,
Bromley, Kent.
Tel: 01-464 0788

UCA

Challenging Opportunities

TI PEOPLE

BERKSHIRE **£7,500 +**

If you have a minimum of one years experience on TI990 then this finance organisation could be very interested in you. This firm also has an extensive IBM installation and could train people on this side of their business. Very good mortgage assistance and free BUPA are just some of the perks. CW 25/1

RPG PEOPLE

HOME COUNTIES **to £10,000**

We are looking for experienced RPG Systems 34/38 Programmers and Analysis Programmers for multi various vacancies in C. London; Enfield, Bromley, Horsham and South West Middlesex plus other locations. All these companies offer super opportunities for career progression plus relocation expenses and one offers banking perks. Please ring now. CW 25/2

ANALYST/PROGRAMMER

KENT **to £10,000**

How is this for an opportunity? A major commercial organisation can offer not only reduced tour fares but also assistance with moving and expenses. You have to provide an ICL COBOL background or TOTAL experience plus the ability to supervise a small team of programmers. CW 25/3

SYSTEMS PROGRAMMERS

LONDON/SOUTHERN HOME COUNTIES **£9,000 to £15,000**

Presumably you do exist?

If you have any in-depth experience of one of the following, we have a number of well-heeled clients eager to press a very good salary into your hands: DOS/VSE, OS, VS, VM, MVS, IMS, CICS, BTAM or VTAM. Trainee Systems Programmers with an application programming background would also be very welcome. CW 25/4

BANKING SYSTEMS ANALYST

CITY **to £13,000 + perks**

A small bank based in the City with a SYSTEM 38 now requires someone with banking or similar background who would like to work in a small friendly team. RPG III is not essential but would be useful as there is also an Analyst/Programming vacancy. CW 25/5

SALES – SUPPORT OPPORTUNITIES

C. LONDON & HOME COUNTIES **£ Neg + Car**

A very famous computer manufacturer is eager to engage sales support staff who have experience as programmers or analyst/programmers with a retailing application background preferred. Your previous computer experience is unimportant but most essential is the ability to get on with people and be presentable. CW 25/6

SALES EXECUTIVES & SALES MANAGER

LONDON, HOME COUNTIES & MIDLANDS **to £20,000 QE + Car**

An established market leader wishes to expand his penetration of the micro market by engaging Senior Salesmen to take charge of existing accounts whilst obtaining new business. A real chance to match your efforts with reward and managerial promotion after a reasonable period is well on the cards. CW 25/7

LATEST FREELANCE PROGRAMMING VACS.

IBM PL/1	JSP MVS	LONDON
IBM COBOL	VSAM	W. COUNTRY
IBM PL/1	(CICS, DL/1)	LONDON
IBM COBOL	CICS	W. LONDON
IBM COBOL	DL/1	W. LONDON
IBM COBOL	MVS	W. LONDON
ICL VME/B	IDMS	N. LONDON
DEC VAX	COBOL	N. LONDON

Please ring Alan on 01-458 8535 for Freelance details

Universal Computer Associates Ltd
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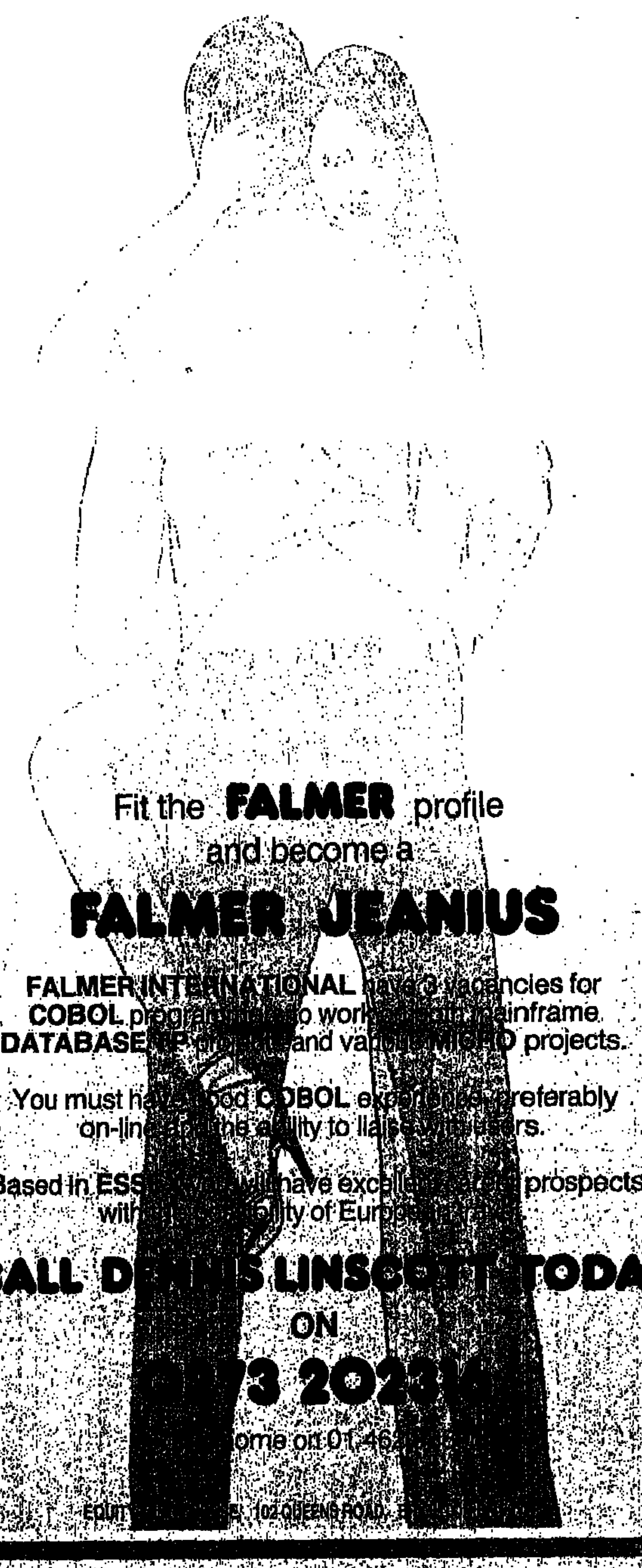
COULD YOU FIT FALMERS



Fit the **FALMER** profile and become a

FALMER JEANIUS

FALMER INTERNATIONAL have 3 vacancies for **COBOL** programmers to work on both mainframe **DATABASE** projects and various MICRO projects.

You must have good **COBOL** experience preferably on-line and the ability to liaise with users.

Based in ESSEX you will have excellent career prospects with the possibility of European travel.

CALL DENNIS LINSCOTT TODAY ON 0273 20231

or at home on 01-46...

EQUITY ... 102 QUEENS ROAD, ...

Analyst Programmer

Range £9,597–£10,881

At British Gas, computers are playing an increasingly important role. In fact our network and installed capacity ranks us amongst the most advanced and sophisticated users in Europe. In London WC1 we have an immediate need for an Analyst Programmer:

THE JOB
- Fortran plus Cobol and Assembler
- Timesharing, batch and real-time
- Univac 1100 installations
- Scientific, engineering and information applications
- Convenient Central London location

THE PERSON
- At least a year's programming experience
- Analysis ability
- Degree or equivalent

THE REWARDS
- Salary in the range £9,597 – £10,881
- Excellent Benefits package
- Relocation assistance, where appropriate
- Involvement in an expanding function within the energy industry

Ring Mike Davies on 01-831 6272 ext. 4192, or clip the coupon and send it to Senior Personnel Officer [Engineering], British Gas, 59 Bryanston Street, London W1A 2AZ.

Please send me further information and an application form for Analyst Programmer ref: PS/601501/705/CW.

Name________ Initials________

Address________

BRITISH GAS

CONTRACTS

VAX BASIC/FORTRAN	(Now)
SNA VTAM IMS CICS SYS PROGS	(Now)
DATABASE OR COMMUNICATIONS (IBM USEFUL) SENIOR CONSULTANTS	(Late Summer)
UNIVAC 90/30 COBOL IMS	(Now)
UNIVAC FORTRAN	(Now)
DATA POINT/DATABUS	(Aug./Sept.)
PL1/CICS/DL1	(Now)
MVS/PL1/DL1/JACKSON	(Now)
DOS COBOL CICS	(Now)
FORTRAN FINANCIAL MODELLING	(Now)
PDP 11 RSTS/BASIC	(Now)

MONTREAL ASSOCIATE SYSTEMS LTD
98/100 High Road, Ilford, Essex IG1 1DS
01-553 2944 (4 lines) EMP AGY. (0024)

SOUTH COAST

If you want to know what vacancies are currently available in all Southern Counties ring

Jeff Minards
(Managing Director)

CBS APPOINTMENTS

Bournemouth (0202) 292155 (Office) or 0202 584691 (Eves & W/ends) Agy. (9821)

REQUIRED FOR LIBYA

COMPUTER PROGRAMMERS/ANALYSTS

Minimum 5 year experience in E.P.D. Project leadership and system design would be an asset. Good Cobol language essential and experience on NCR 82-70 IMOS V operating system. Client currently converting from Batch IBM to on line NCR. Salary negotiable in accordance with experience. Accommodation provided and shared transport. Working cycle 6 × 8 hours. Leave cycle 8 weeks followed by 2 weeks' UK leave.

Write in first instance giving details of qualifications and experience to: Maconex Limited, 51 Fog Lane, Manchester M20 0AR (0027)

UNIX* & C SYSTEM III

PROGRAMMERS

£ generous E.C.1

Expanding young company requires programmers with experience of UNIX & C. We are the market leaders in the field.

Write with C.V. to
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LONDON EC1A 9HH

*UNIX is a Trademark of Bell Laboratories (0014)

COMPUTER CONSULTANTS-SOFTWARE PRODUCTS SCHEME

c. £10,500 **Manchester**

The Software Products Scheme provides grants to computer service companies for the development and marketing of software packages. NCC administers the Scheme on behalf of the Department of Industry.

Because of a significant expansion of the Scheme the Centre now requires additional staff.

The work includes the technical and commercial assessment of proposals and the monitoring of grant-aided projects.

Applicants should have a broad knowledge of computer hardware and software. Experience of managing software development projects or of marketing software products will be a particular advantage.

These new posts are based in Manchester but a willingness to travel throughout the UK is essential.

Starting salary: About £10,500 in a range rising to £14,260.

Conditions of service are excellent and include 25 days annual holidays plus 10 statutory days: Contributory Pension and life assurance schemes. Help with relocation expenses.

Please write with career details or write/telephone for an application form to:

The Personnel Manager, The National Computing Centre Ltd., Oxford Road, Manchester M1 7ED or telephone 061 228 6333.

NCC The National Computing Centre (0015)

Operations Support Specialist

Up to £8,000 Halifax (West Yorkshire)

We are Samuel Webster & Sons Limited — a long established brewery, situated in a pleasant rural area on the outskirts of Halifax. Part of a major group — we are committed to the implementation of new technology in all facets of the business.

1983 in particular will herald our movement into on-line order entry, word processing and the electronic office concept, and it is in preparation for this that we now seek an Operations Support Specialist.

Initially, this involves setting-up and being responsible for, the technical operating standards within the department. Later, the job will involve some programming expertise for which training will be given.

The person appointed will be a key member of a highly professional team, who act as an internal management consultancy for the brewery. The department is involved in every aspect of brewery management and is responsible, not only for computing, but also telecommunications, work study, organisation and methods and office administration. The D.P. section runs one Data General C350 Eclipse, an MDS 2400 and an MDS21/50, with additional Data General equipment on order.

This is an ideal opportunity for a man/woman with at least 4 years experience in computer operations, who is currently working in a support role or as Chief Operator or Shift Leader — and who now wishes to progress to a more challenging, rewarding job.

We offer an excellent benefits package, which includes where necessary re-location assistance. This plus the opportunity to progress within a forward thinking organisation must make this one of the most exciting opportunities currently on the market.

To apply — please write with full curriculum vitae to:

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John Mahon,
Manpower Resourcing Manager,
Samuel Webster & Sons Limited,
Fountain Head Brewery,
Ovenden Wood, Halifax HX2 0TL.
Tel: 0422 63461.

Freelancers . . .

. . . in the North of England and Scotland who are available now or in the near future are invited to contact me, Peter Moore, to discuss a variety of interesting and rewarding assignments throughout the UK and overseas.

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PE

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TECHNICAL COLLEGE

LECTURER I in COMPUTER STUDIES

(Data Processing)

required for September 1st to teach Programming and Computer Appreciation on Business and Management Studies Courses.

Applicants should have a knowledge of BASIC and preferably COBOL together with experience in business data processing.

Salary: £5,355-£9,267 (Burnham Technical Scales) commencing salary will be determined by experience and qualifications.

Application forms and further details may be obtained from the Principal, Peterborough Technical College, Park Crescent, Peterborough PE1 4DZ. Application forms should be returned as soon as possible. 0039

DATA SCIENCES INTERNATIONAL LTD

BUSINESS SYSTEMS SALES

c. £20,000

Our London (Ilford) Office requires an experienced salesman to pioneer sales of our on-line systems, in the South.

You should have a sound business systems knowledge and ideally a background in interactive systems sales.

If you have these qualities together with a successful sales track record contact:

Ken Fitzgerald, Sales Manager
D.S.I. Ltd
325 Ilford High Road, Ilford, Essex
Tel: 01-553 1421

Computer Centres:
London, Birmingham, Manchester, Leeds (9838)

Senior Software Development Engineers

Appointments are to be made in the Instrumentation and Training Division of Marconi Radar, to work on high technology products for the computer generation of imagery.

Applicants (male or female) should be experienced software designers with good qualifications and knowledge of the constraints of real time process control. Familiarity with PDP 11, VAX 11, their operating systems and Macro 11 and Pascal languages would be desirable.

Write or phone Ronald Harle, Marconi Radar Systems Ltd., New Parks, Leicester LE3 1UF. Telephone 0533 871481.

Marconi Radar Systems

MICRO SALES

OPPORTUNITIES

CENTRAL LONDON £15K PLUS CAR

Due to the recent release of the Micro version of their exceptionally successful Mainframe and Mini Package, our client, noted providers of Financial Planning Software, seeks to expand its Sales Team.

You will probably be in your early twenties and providing TECHNICAL SUPPORT in a TIMESHARING or similar environment.

Your ambition will now be to join a Sales Team where your drive and Technical ability will give you the opportunity of high earnings.

Although you may not have had any experience in selling, you will have already gained a conceptual knowledge of its procedures and have a mind capable of innovative thought.

Based Central London, the position would commence in a Support role, moving directly into sales after a short period.

Working against realistic targets, this is an opportunity to join one of the most succesful British Companies in their field.

Further information will be gained by contacting;
BRIAN MAWDSLEY Quoting Ref 6136

9986

Lloyd Chapman Associates
123, New Bond Street, London W1Y 0HR 01-499 7761

OUTSTANDING OPPORTUNITIES

Due to continued success in their specialist field this dynamic young organisation is expanding and seek a further two individuals with the right qualities to contribute to their future plans.

ANALYST PROGRAMMER (CONSULTANT)

£11,000 + Car + Bonus

The successful candidate should currently be either an Analyst or Analyst Programmer, with experience gained on the IBM GSD Hardware. A graduate with background in Financial Applications and some experience of Programming in RPG II would be ideal.

RPG II PROGRAMMER

£9,000 + Car + Bonus

For this position you will need around two years' experience of Programming in RPG II and a desire to be involved in both analysis and Systems 38, sooner rather than later.

The company see these positions as providing unlimited potential through a wide variety of projects.

Intensive training will be given where necessary. Length of experience, whilst not disregarded, is not as vital as the ability to accept and thrive on the high degree of responsibility offered.

For further details please call:
JEFF RUBBERT
Quoting Ref. A/7149

(0004)

ABRAXAS (Computer Employment Limited)
357 Euston Road London NW1 3AL
01-388 0111 (24 Hours)

logistix Logistix Recruitment Limited
10 Grenville Place, London SW7 4RW

Telephone 01-373 3063

Software Trainers

Central London: Salaries to £10k

The Training Division of a leading, London-based Systems and Software House has a number of vacancies for either experienced Trainers or software specialists wishing to adopt a new and challenging role. Candidates should be graduates, not necessarily in a scientific discipline, and be able to communicate effectively both orally and in writing. Previous experience in a teaching or training role is preferable but by no means essential. More important is fluency in a widely used, high-level language such as Cobol or Fortran and an appreciation of structured programming techniques. Continual exposure to the latest tools being utilised in software development is an integral part of these positions and applicants should, therefore, have the ability to quickly assimilate new, complex ideas. **Ref: L/25/A**

Real-Time Programmers

Hants/Surrey: Salaries to £11k

Real-Time Programmers are urgently required by the design and development division of a renowned Systems and Software Supplier based on the Hants/Surrey border. Suitable applicants should offer a minimum of 12 months' programming experience in a real-time mini- or micro-computer environment. Particular hardware skills are not important but a salary premium will be paid to applicants who have had some exposure to UNIX-based systems. It is essential, for all positions, that you offer fluency in at least one of Pascal, Fortran, C or Assembler. Working as a member of a small team, you will be involved in projects which include data communications, process control, simulation and networking. **Ref: L/25/B**

Real-Time Systems

Netherlands: Salaries to £16k

A successful European supplier of Total Systems and Software Products has a number of vacancies for **Systems Engineers** and **Software Programmers** for permanent career positions in the Netherlands. Candidates should hold at least one numerate degree and have one year's post-graduate work experience. Systems software programming expertise must include fluency in a high-level language such as Pascal or RTL-2 with preferably a reasonable command of Assembler as a secondary skill. Applications experience should have been within one or more of process control, industrial automation, C' systems or retail banking (i.e. automated tellers). Full relocation expenses will be met and whilst some knowledge of either Dutch or French would be appreciated, the Company will provide language courses. Preliminary interviews will be held in our offices in mid-July. **Ref: L/25/C**

Senior Software Designers

Thames Valley: Salaries to £16k

The Research and Development unit of a major supplier of office automation and networking products is currently seeking **Senior Software Designers.** Candidates, aged 27-35 years, should have a minimum of five years' design experience in a distributed processing environment and be fully conversant with communications protocols, layer architecture, voice communications, terminal protocolling and in general, local and wide area networks. For the more senior positions, you should have man-management and project control experience and in particular be able to work to tight production and delivery schedules. Relocation expenses will be considered where appropriate. **Ref: L/25/D**

Micro Software Development

Cambridge: Salaries to £12k

Programmers and **Software Team Leaders** are urgently required to assist in the development of applications and systems software for a new generation of micro-computers. Successful candidates for the positions of Team Leader will be fluent in a high-level block structured language and have specified and implemented at least one compiler. Working in-house, their responsibilities will include the design, development and commissioning of systems software and the evaluation of commercial packages submitted by sub-contractors. Programmers will also be expected to offer fluency in a block-structured language and, preferably, have gained the majority of their post-graduate experience in micro-based systems. High standard of documentation and the ability to conform to tight deadlines are required of all respondents who, in return, will be rewarded by highly competitive salaries and a dynamic working environment. **Ref: L/25/E**

Comms. Software Designers

South Wales: Salaries to £11k

A world-leading supplier of telecommunications equipment has a number of requirements for **Communication Software Designers** to join its Research and Development facility. All candidates must possess at least one degree in Computing Science or Electrical/Electronic Engineering and have had two years, or more, in an industrial environment. Past responsibility for hardware implementation, as well as software design of low level protocols up to, and including, Transport Service will be favoured. Applicants should, preferably, have hands-on experience with a leading MDS and be fluent in an Assembler and one or more high-level block structured languages. **Ref: L/25/F**

Fortran Programmers

Hertfordshire: Salaries to £11k

An established supplier of Computer Aided Engineering Turnkey Systems is seeking to expand its software development department by the recruitment of additional **Fortran Programmers.** You should hold at least one degree in a numerate subject and have a minimum of 12 months' subsequent Fortran programming experience. Working as a member of a small project team, you will be assigned to a development project within one of the following areas namely Production Control, Micro-Electronics (integrated circuit design), or Oil/Gas Exploration. Our clients' software products are portable but those candidates who have current programming experience on PDP-11/VAX or Prime-based hardware will attract a salary premium. **Ref: L/25/G**

Technical Authors

Cambridgeshire/EEC: Salaries to £10k

We have recently been contacted by several companies seeking **Technical Authors** for Cambridgeshire and overseas locations. Applicants for all positions should have designed and written User documentation for at least one hardware or software product. A good command of the English language is essential as is the ability to communicate with both technical and non-technical personnel. For the overseas positions, some programming experience would be a distinct advantage since the client anticipates you will eventually progress into a software development team. **Ref: L/25/H**

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ITALY – PDP 11, RMS II/RSX II, Task Building	£400+
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For further information telephone 01-493 2847 daytime, for UK positions ask for Jenny or Ian, for Overseas positions Jenny or Roger, evenings 8-9 p.m. or weekends Jenny Dalrymple-Hay on Beaconsfield (04946) 4579, Ian Murray West on Milton Keynes (0908) 563415, Roger Allington on Little Gaddesden (044284 3536), or write quoting Ref. 9914.

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ANALYST/PROGRAMMERS:
at least 2 years experience in commercial applications programming using high level languages to high professional standards

IBM ASSEMBLER PROGRAMMER/ANALYST:
1-2 years experience in IBM Assembler programming plus ability to move into systems analysis/design role

TECHNICAL SUPPORT PROGRAMMER:
at least 2 years experience in technical support or software programming on DEC PDP II (RSTS or RSX) or VAX (VMS) equipment

DATABASE DESIGNER/DATA ANALYST:
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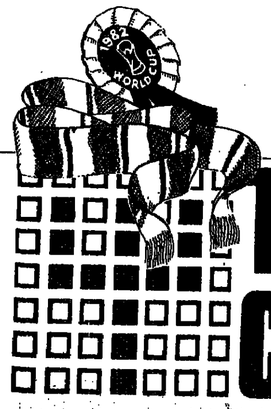

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Should your profile not match up to this specification, but the environment sound of interest to you in terms of the potential technical and career advantage you feel you would gain from working in this fast expanding area of the industry, then our client would be interested in talking with you about your micro based experience which should include exposure to a range of commercial applications, BASIC and/or ASSEMBLER language expertise, or an understanding of CP/M or similarly compatible environments.

In either case, to arrange an initial interview, please call Rex Ashcroft on 01-935 0671 during working hours, or Harlow (0279) 416529 evenings and weekends.

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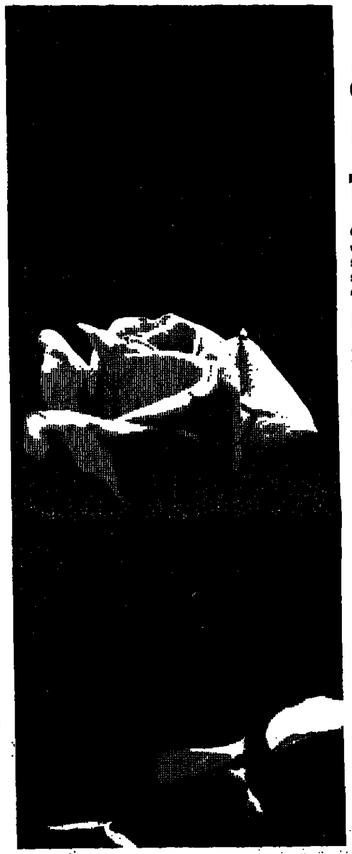

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Reporting to the Test and Acceptance Manager, these Analysts will be responsible for developing test strategies and planning for the delivery and acceptance to end users of complex software.
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ANALYST/PROGRAMMER

TUNBRIDGE WELLS C £10,000

Our client is part of an International insurance group which is committed to the successful installation of data processing systems.

They are developing sophisticated on-line insurance and marketing systems based on an IBM SYSTEM 38 using RPG III and COBOL. The increased rate of system development now requires an experienced Analyst/Programmer to join the expanding data processing department.

Candidates will need 3 or more years' experiance in analysis and programming based on RPG. Knowledge and use of RPG III will be an added advantage.

This position offers an excellent opportunity for a dp professional to implement a variety of systems using the latest database technology in a commercial environment.

Full career details please to James Duncan and Associates.

James Duncan & Associates

Lambart

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SENIOR SALES EXECUTIVES!
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£20,000

We are urgently seeking an extremely high calibre senior salesperson able to demonstrate a proven track record who will grasp this opportunity to succeed in the position of:

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Positive growth, recent diversification and expansion of DEC Based Systems has produced this position.
The successful applicant will have extensive sales experience in Turnkey, Commercial/Communications Systems at the highest levels in Banking, Commerce and Industry.

Contact:
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Telephone (0628) 72037

(0965)

Lambart Computing
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Telephone: Maidenhead (0628) 72037/8/9 Telex: 848635

DATA PROCESSING MANAGER

OXFORD
£10,000 — £13,500 PACKAGE

Chartered Accountants (5 Partners) with main office in Oxford want a DPM responsible to the senior partner to: a, develop and supervise Bureau work of Book-keeping, accounts preparation, wages, cashflow, etc, for clients and run in effect as a commercial undertaking; b, technical assistant with the book-keeping, 'Work in Progress' ledger and client ledger of the practise (used by our own accountant); c, organise amendment/updating of Software; d, offer consulting advice to clients — feasibility through to implementation.

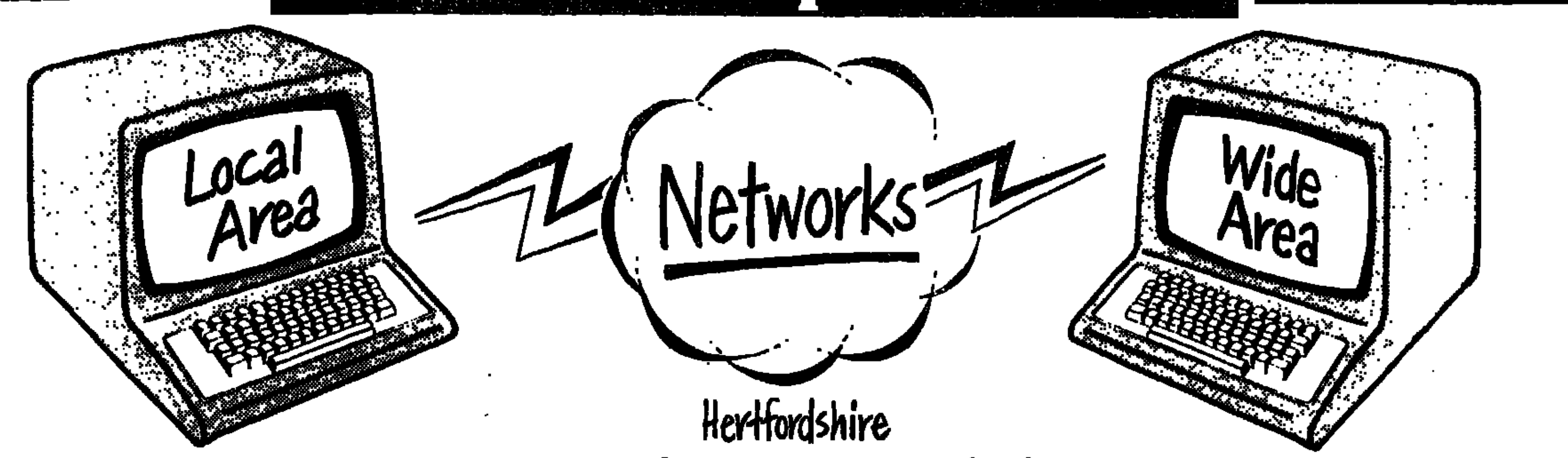
We aim to offer one or two minis/micros mostly with standard systems. The installation is two years old and consists of a number of Jacquard machines and peripherals. One full-time DP assistant is employed.

There is considerable opportunity for advancement, as the bureau side is small at present and both this and consulting advice can be developed. Effort/Enterprise will be fully rewarded and we therefore need a person with drive and initiative who will want to see this part of our business and their career grow and develop.

Please phone or write to
M. J. Sinfield,
A. B. Adams and Co.,
Prama House, Banbury Road, Oxford,
Tel: (0865) 53241

(0044)

A New Development Team



Hertfordshire

Principal Consultant/Designer £ Negotiable
Senior Team Leaders/Consultants to £15,000
Senior Programmers to £12,000
Programmers to £ 9,000

Our client is embarking on the development of one of the largest multiple node networks of computer communications systems in Europe. Being a large, successful manufacturing company they have the facilities and credibility to handle a project of this size. Early study and planning phases are initiated but the main design and implementation teams will be newly recruited.

Principal Consultant/Designer The candidate for this position will probably be a national figure. You will have considerable experience and knowledge of communications and networking at a state-of-the-art level and be capable of representing the company at International meetings.

Senior Team Leaders/Consultants will have several years systems software implementation experience, typically at operating systems level on minis and micros. They are expected to have a good appreciation of hardware architecture. Experience of communications systems would be advantageous.

Senior Programmers & Programmers will have two or more years experience of systems software implementation or technical applications development on minis or micros. Essentially they will be bright people who will be attracted by the scope and challenge offered by a project of this magnitude.

Usual successful company benefits including relocation assistance where appropriate.

Apply in confidence to Terry Harvey by sending personal and career details, or contact him for an application form, evenings Gt. Missenden (02406) 4705 or daytime as below.

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Our current requirement is for a

Network Control Supervisor HORSHAM

who will ensure the T.P. Network is competently controlled and operated through the supervision of network staff.

You must be capable of resolving all hardware and software communication faults other than those of the most complex nature. The ability to use and interpret VTAM traces, a line monitor and other diagnostic tools for testing hardware on the network, together with a detailed understanding of the BSC/SDLC line protocols will be essential.

You will probably be aged around 30, with a background which includes systems programming and network management, ideally involving at least 300 terminals.

We offer a salary negotiable to around £12,000 plus a range of benefits including mortgage subsidy and relocation assistance where appropriate. Career development opportunities are first class.

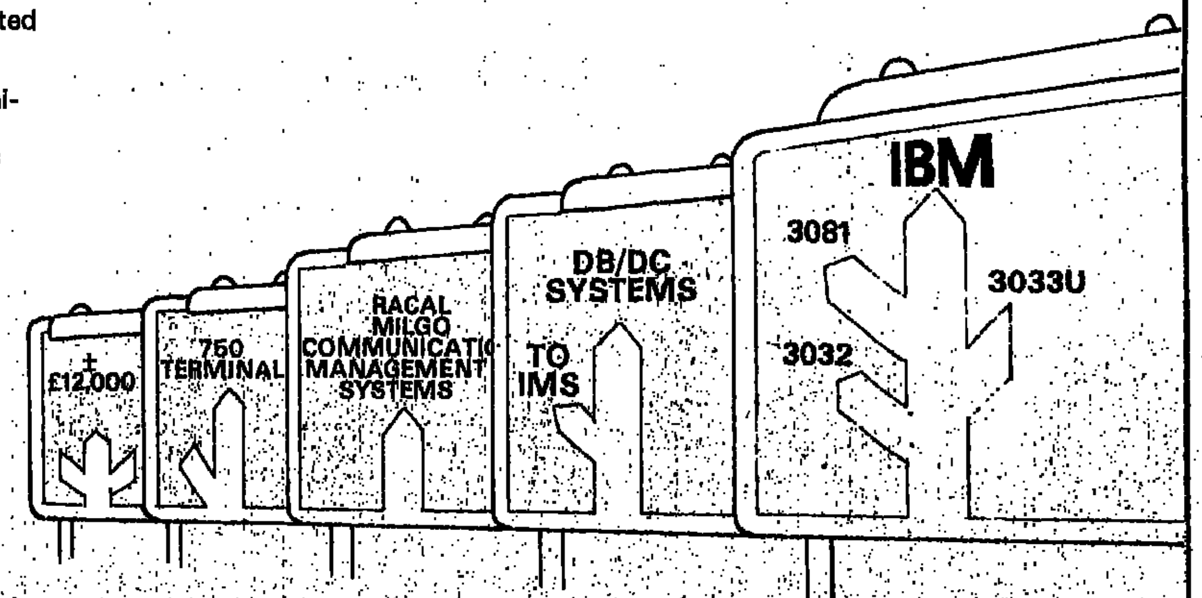
For an informal discussion telephone John Emerson, Computer Operations Manager on Horsham (0403) 64141.

For an application form please contact:
Susan Davis, Recruitment Adviser,
Sun Alliance Insurance Group,
1 Bartholomew Lane, London EC2N 2AB.
Tel: 01-588 2345 ext. 1237.

Sun Alliance's extensive computer operation is located within our Head Office complex in Horsham – set in the delightful Sussex countryside, and within easy reach of the South Coast.

We have developed one of the largest networks in the country, based on an IBM mainframe which includes a 3081, a 16 megabyte 3033U and a communication link to a 3032 in Birmingham. Currently at 750 terminals and growing, the network is controlled by three 3705's. We are changing our DB/DC systems to IMS and will be switching the network protocol from BSC to SDLC and installing a Racal Milgo Communications Management System.

With these and other planned system developments we can offer real career opportunities to experienced personnel within an established and far sighted D.P. team.



SUN ALLIANCE
INSURANCE GROUP

The Mining Research and Development Establishment's programme covers research development and testing in all fields of science and engineering associated with coal mining. The Computer Systems Development Branch is responsible for Minos computer systems which have been adopted as a standard by the NCB for colliery remote control and monitoring applications. Work is in progress to increase the range of facilities and applications for major projects such as the Selby coalfield.

We have an opportunity for a

Systems Software Engineer

to £10,000 plus benefits Burton-on-Trent

With knowledge of and interest in one or more of the following fields:
* real time operating systems * device drivers * reusable software * systems utilities * process control

Experience of PDP 11 and LS 1-11 systems, RSX 11M and Macro 11 is desirable. Applications are programmed in CORAL-66 and a knowledge of this or another procedural language would be an advantage.

An excellent development environment includes twin PDP-11/70's and a VAX 11/750 together with multiple 11/34 and 11/23 systems. Major system developments being undertaken include extensions to the Minos operating system, peripheral support, and systems software for process control applications including monitoring coal face performance, monitoring and control of electrical distribution systems, protective control and management of underground and surface fixed plant such as fans, pumps and water distribution systems, coal transport network control and mine ventilation monitoring.

Salary will be in the range £6,000-£10,000 depending on qualifications and experience. Excellent benefits include nearly 6 weeks' annual holiday and self-financing incentive scheme.

Please write for an applicaton form quoting ref. FY.831 to:

NCB D. J. Allsop, Staff and Administration Manager, National Coal Board, Mining Research and Development Establishment, Ashby Road, Burton-on-Trent, Staffs. DE15 0QD. (00371)

SYSTEMS & PROGRAMMING

MANAGER—TECHNICAL SUPPORT

City-based Financial Services Company — c. £16000
Our client, a major services organisation involved in the financial market, requires a talented DP professional to manage all technical support functions within their dynamic and expanding installation. Hardware is based on twin IBM 4341 mainframes (another due late 1982), running under DOS/VSE, VM and CICS/VS, supporting an international telecommunications network controlled by two IBM Series 1 machines. The successful applicant will be responsible for the support, maintenance and development of all systems software within this bureau services environment including the management of a 4-strong technical programming group. We would like to hear from candidates who possess a thorough knowledge of DOS/VS, have at least 3 years' systems programming experience plus previous involvement (or potential) in the supervision of technical personnel. Additionally, an outgoing personality is essential as is the ability to communicate complex ideas and techniques to personnel at all levels. Ref: M1333

SYSTEMS ANALYST

CITY — To £20000
A major financial institution is seeking to recruit a systems analyst to join a team of professionals who are responsible for the quality control of the entire DP department. Candidates can expect to gain valuable experience within a progressive IBM environment. If you have a minimum of 3 years' analysis experience with a programming background, phone now for further details. Ref: T1336

SENIOR PROGRAMMERS

CITY — c. £10500
Our clients are a leading international bank based in the City whose commitment to DP expansion has created vacancies for 3 senior programmers. Candidates should have a strong IBM OS background and be self-motivated individuals who wish to make positive career progress. Preference will be given to applicants with CICS and database experience. Ref: T1334

ANALYST/PROGRAMMER

SURREY — c. £10000
A vacancy exists within a rapidly expanding services company for an analyst programmer to develop commercial systems for a variety of companies. If you have 3-4 years' COBOL experience and wish to further your career in a challenging environment, please contact us immediately for further details. Ref: T1335

OPERATIONS

IBM DOS OPERATIONS

LONDON — £7200-£10000
This manufacturing concern is seeking operations staff at both supervisory and operator levels. An opportunity exists at SHIFT LEADER level, for which applicants should possess a minimum of 5 years' experience in a VM/DOS VSE and CICS environment; previous shift leading experience is essential. There is also a vacancy for an OPERATOR for which approximately 18 months' similar experience is required. Candidates should be self-motivated with a professional approach and the ability to work under pressure. Ref: W1322

IBM OS OP/SENIOR OPERATOR

CITY — £7,000-£9,100
This is an outstanding opportunity for a self-motivated DP professional to join an established but progressive installation. You should possess a minimum 18 months OS VS1 experience and be fully conversant with JCL & Utilities. The hardware comprises an IBM mainframe and a rapidly expanding Communications Network utilising PDP equipment. The successful applicant can expect total job satisfaction and an interesting long term career path. Salary will be commensurate with experience and a superior range of benefits is offered inc. sub. MORTGAGE and annual BONUS. Ref: J1222

IBM DOS SHIFT LEADER

C. LONDON — c. £7000 + B/A
We have an excellent opportunity for a mature, highly-motivated individual who is seeking a career move into junior management. The successful candidate, who should be fully conversant with DOS VSE, JCL and Utilities in a TP environment, will progress to a DAYS ONLY role within 6 months. Reporting directly to the Operations Manager, you will be responsible for the daily running of the machine room, supervision and training of a small, busy team and first-line technical support. Current hardware comprises an IBM 4300 mainframe, running on a 2-shift system. Ref: P1309

IBM OS OPERATOR

C. LONDON — £7500
Major financial organisation based in the City requires an operator with a minimum 18 months' VM/VS1 experience; MVS would be an advantage. The successful applicant, who should be both mature and ambitious, will be required to operate a powerful dual-IBM configuration. A first class benefits package is offered which includes sub. MORTGAGE, annual BONUS, personal loans and n/c pension. Ref: W1321

UNIVAC SHIFT LEADER

C. LONDON — c. £7500
We have been asked to assist in the recruitment of a Shift Leader with a minimum of 2 years' experience gained in a UNIVAC 1100 environment (preferably 1100/60). You should ideally possess a knowledge of Communications and Utilities. The successful applicant, who will be required to supervise a small team on a 'staggered' DAY-shift basis, can expect interesting long-term prospects as a result of future development plans. Usual large-company benefits apply. Ref: P1327

ICL 2904/ME29 OPERATORS

W. LONDON/MIDDX. — c. £8250
We have two clients who are currently seeking operators with a minimum of 18 months' 2904 or ME29 experience to work on an extended DAY-shift rota. Please telephone for full details. Ref: P1301

IBM DOS/OS OPERATIONS

LONDON AND HOME COUNTIES — To £9500
We have a number of vacancies available for IBM operators with a minimum of 12 months' experience, some of which are listed below:

a)	C. LONDON	SEN. OP.	VM/VSE	3-shift	£8500
b)	ESSEX	OP. × 3	VM/DOS VS(E)	2- and 3-shift	£7000
c)	E. LONDON	OP. × 2	VM/DOS VS(E)	2- and 3-shift	£8000+
d)	BERKSHIRE	OP. × 2	DOS VSE	2- and 3-shift	£7000
e)	MIDDLESEX	OP./SEN. OP.	DOS VSE	2-shift	£7500+
f)	C. LONDON	SEN. OP.	DOS VSE	2-shift	£9500
g)	SURREY	OPS./SEN. OPS.	VM/VS1/MVS	3-shift	to £9500
h)	ESSEX	SEN. OP.	MVS/JES 2	2-shift	£7000
i)	BEDS.	OPS./SEN. OPS.	MVS/JES 2	3-/4-shift	to £9500
j)	BERKSHIRE	SHIFT LDR./SEN. OP.	MVS/JES 2	3-shift	to £9000

Ref: WJGEN

For full details of the above requirements, please telephone quoting the reference number.

— VARIOUS —

BURROUGHS OPERATOR	Medium Systems	2-shift	C. LONDON
IBM SYSTEMS 34 OP.	6 months+	2-shift	S.W. LONDON
HONEYWELL 34 OP.	Level 64	2-shift	S.W. LONDON

Ref: PVGEN

IBM DATA CONTROL
£5300-£7800
12 months+ DOS or OS experience
All areas : Ref: W1314

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PROGRAMMERS Adabas/Natural	**to 10K** London/Home Counties
SENIOR PROGRAMMER PL1/Database/CICS	**to £15K** Croydon/Beds./Berks
SALES EXECUTIVES Packages/Micros/Peripherals/Turnkey	**to £25K** N. Yorks/N. Berks/Herts/Oxford
ANALYST PROGRAMMERS COBOL IBM/HP/ICL ME29	**to £10K** London/Essex/Sussex/Hants.
PRE/POST SALES SUPPORT Minis/Realtime/Cad/Cam	**to £12K** Berks/Middx/London
ANALYSTS IBM	**to £12K** London/Middx.
SYSTEMS ANALYST IBM SY.34 RPGII exp.	**to 12K** East Anglia/Bucks
FIELD SERVICE ENGINEERS Mainframe/Minis/Peripherals	**to £13K** Nationwide
SYSTEMS/APPLICATIONS PROGRAMMERS Strong IBM environment preferred	**to £12K** West Midlands
ANALYST PROGRAMMERS ICL 2956/Database/Fortran/Pascal	**to £12K** London
HARDWARE TRAINING INSTRUCTOR Wide selection of applications	**to 15K** London Surrey
ANALYST PROGRAMMERS RPG3/System 38	**to £10K** Norfolk
SOFTWARE ENGINEERS Telecoms/Military/ATE	**to £11K** Home Counties
PRINCIPAL CONSULTANTS Commercial Software exp/Accounting qualifications Data General COBOL	**to 15K** Berks.
PROGRAMMERS RPG/BASIC MINI COMPUTERS	**to £10K** London/N. England
PROJECT LEADERS/MANAGERS	**to £13.5K** London/Home Counties.
PROGRAMMERS CAD/CAM	**to £12K** Essex
ANALYSTS Manufacturing/Production	**to £12K** Bristol
SENIOR PROGRAMMERS COBOL/IMS	**to £11K** Northants/Bristol

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COMMAND and CONTROL
INDUSTRIAL AUTOMATION
HARDWARE DESIGN
SOFTWARE SPECIALS

who have a real-time background on minis and micros. Previous experience in the Control, Automation, Energy or Defence industries would be advantageous as would some knowledge of information acquisition, data communications display or database design.

Ideal language and hardware exposure would include some of the following: CORAL 66, Assembler, PASCAL, FORTRAN or RTL2; on PDP 11, VAX, Argus 700, HP 3000, INTEL, Motorola, Texas or LSI Micros.

For further information telephone Jenny Dalrymple-Hay or Ian Murray West on 01-493 2947 (day), or respectively Beaconsfield (04946) 4579, Milton Keynes (0908) 563415 (evenings, 8-9 p.m./weekends) or write, quoting Ref. 9913.

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Saudi Arabia
Tax Free Opportunities

A major computer consultancy organisation in Riyadh requires the following experienced staff for work in the Computer Centre of one of Saudi Arabia's Ministries.

Systems Programmers
c. £20,000
Degree, 8 years' experience with 4 year systems programming with IBM machines. Must have used DOS/VS and DOS/VSE. (Ref: L1601)

Senior Systems Analysts
c. £18,500
A degree, plus extensive experience in IBM machines using OS, OS/VS, DOS, DOS/VS, CICS, GRASP POWER, VS, experience of COBOL, ASSEMBLER, FORTRAN and PL/1. To examine new applications, formulate design and specifications. (Ref: L1597)

Twelve month renewable contracts will be offered to selected candidates. The above tax free salaries include a one month end of contract bonus. In addition selected candidates will receive free furnished accommodation, local transport allowance and 30 days U.K. leave with air tickets provided. Bachelor or married status.

Our client's need is urgent, so please telephone for an application form, quoting the relevant reference number to: Chris Jamieson, Lansdowne International Limited, Lansdowne House, 35 Great Smith Street, Westminster, London SW1 3BU.

Telephone 01-222 3264 (24 hours)

Lansdowne INTERNATIONAL RECRUITMENT CONSULTANTS (0810)

Metropolitan Borough of Solihull

SOLIHULL INFORMATION TECHNOLOGY CENTRE

SENIOR SUPERVISOR
£8,733

For this new centre to be based at Coventry Road, Sheldon, Birmingham 26.

We are looking for suitable qualified people who possess a recognised Computer qualification and have previous experience of programming micro – computers in Basic and Cobol. Teaching or commercial experience will be a necessary qualification.

The centre will provide up to one year's training in aspects of information Technology for forty young people. The staff will consist of a manager, senior supervisor and six supervisors.

Application forms and details from:

Director of Education,
PO Box 20,
Council House,
Solihull,
West Midlands.
B91 3QU.

Please enclose a stamped addressed envelope.
Closing date for applications – 14 days after the appearance of this advertisement. 0048

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£5,700 to £7,200 including London Weighting and Shift Allowance (salary under review)

An Operator/Controller is required where you will be responsible to a Shift Leader. This secure position, which necessitates two-shift working, carries with it attractive fringe benefits such as a generous annual leave entitlement, a subsidised staff canteen on the premises and an active sports and social club nearby.

Telephone 01-701 2870 any time for an application form, or write, on a postcard to: The Personnel Officer, London Borough of Southwark, 25 Commercial Way, London SE15 6DG. Please quote reference CW/8/3112 and job title. Last date for receipt of completed application form: 5.7.82. (9909)

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IBM · COBOL · IMS

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Our client requires IBM Senior Programmers with good COBOL and/or IMS skills to work in a MVS environment and to form the foundation of a new team dedicated to the development of a new generation of, world-wide systems on a network of up-to-date, top of the range mainframes.

Candidates with around three years' experience utilising any of the above skills, and who wish to remain at the forefront of technology, can expect to be given early responsibility on major new projects. They must have the ability to assume a team leadership role which, in turn will prepare their path for rapid career development.

If you want the challenge of keeping a large international company's systems up to the minute in its technology, phone me, Phil Harkcom, on 021-634 8501 (business hours) or 021-308 4285 (eves/wknds) or fill in and return the freepost coupon.

Computer People Midlands, Freepost (no stamp), Alpha Tower, Birmingham B1 1BR.

Computer People Midlands

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Tel: (days) _____
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PH-FM

Real-time Software Engineers

Communications is today's growth technology. Tomorrow's developments are in your hands at STC

By far the fastest growth sector of high technology industry is telecommunications. Tremendous strides are already being taken in Information Technology, but their full impact on tomorrow's integrated office systems will only be fully realised through the developments being made at STC in New Southgate.

Here on the northern outskirts of London we are developing System X — the most significant telecommunications project of the decade. The most advanced digital communications system of its kind, it utilises sophisticated computer based distributed architecture to create the capacity to handle a staggering 700,000 user requests per hour. The heart of the system is its unique software — enabling it to address the complex real-time demands upon a major telecommunications network.

System X takes us a quantum leap ahead in technology to the confluence of microprocessor and telecommunication technology. We now require additional Software Engineers to be involved in these state-of-the-art developments which will dramatically increase the effectiveness of the UK's information processing and communications systems.

The Software Department of Switching Main Exchange Product Division is responsible for STC's software involvement in System X, with a number of dedicated project teams working on (1) Sub-system design, implementation and integration, and (2) System integration and development.

We now wish to strengthen these teams and would like to talk to Software Engineers with experience in communications, defence or process control systems, aircraft simulation, signalling or any other real time application. Whatever your background, you must demonstrate the ability to liaise effectively on major multi-lateral projects and to present your work persuasively.

For high calibre professionals with a degree or its equivalent and the potential to lead a small project team, we offer very attractive salaries, comprehensive benefits and exceptional career prospects.

If you have the talent to help give STC-and Britain-the lead in telecommunications, write giving brief details to: Colin Hamilton, Recruitment Department, Standard Telephones & Cables plc, Oakleigh Road South, New Southgate, London N11 1HB.

STC New Southgate
The communications development centre

Mini Computer Sales and Sales Management

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It's rare to find opportunities where all your skills and knowledge will be utilised and where the scope and challenge of your position will be dependent on your own breadth of vision. It's rarer still to find commensurate rewards for your achievements. This respected systems manufacturer can offer both the opportunities and the rewards.

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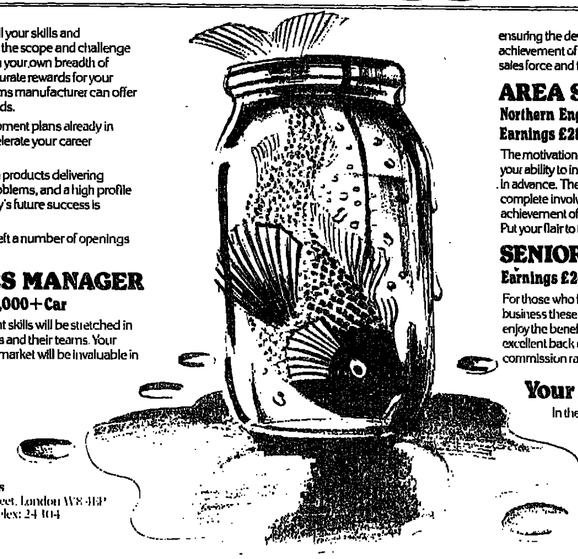
With a very wide range of mini-based products delivering excellent solutions to customer's problems, and a high profile in today's marketplace, the company's future success is guaranteed.

However the growth of the past has left a number of openings which must now be addressed:

REGIONAL SALES MANAGER
Midlands **Earnings £30,000+Car**

All your leadership and management skills will be stretched in the control of several sales managers and their teams. Your knowledge of the business systems market will be invaluable in ensuring the development of the personnel and the achievement of company goals. This is the link between the sales force and the Board with full responsibility for the Region.



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Northern England **South-East England**
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The motivation and guidance of a sales team will depend on your ability to inspire confidence and spotlight problem areas in advance. These are high profile positions that will warrant complete involvement, front-line management with the achievement of targets within budget as the prime mandate. Put your flair to the best possible use.

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Your Action

In the first instance contact James De Siun on 01-938 1804 or send a C.V. marked for his attention. Any approach will be treated in the strictest confidence.

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Recruitment consultants
20 Kensington Church Street, London W8 4EP
Telephone 01-938 1804 Telex: 24 104

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IBM COBOL	VSAM	JULY	HANTS.
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ANALYSTS & SYSTEMS PROGRAMMERS

SYS. PROG. ANALYST	ICL SYS 10	ASAP	HERTS.
	ICL SYS 10 ASSEMBLER	ASAP	LONDON

PLEASE telephone Joan or Paul on Amersham (02403) 22201 or send your C.V. to Plymouth House, 7 London Road, Amersham, Bucks. HP7 0HE.

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PL1/MVS/JSP/DL1	Berks	£375
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ICL		
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SYSTEM 10/SYSTEM 25	Berks	£350
PASCAL PROGRAMMERS	Berks	£350
COBOL/VME/B/IDMS PROJ LDR.	Birmingham	£375
COBOL/VME/B/TPMS	London	£350
COBOL/VME/B/IDMS/TPMS	London	£375
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ANALYSTS

SYSTEMS ANALYSTS, IDMS EXP.	C.London	£400
IDMS SYSTEMS DESIGNER	Birmingham	£375
SYSTEMS ANALYSTS, IBM EXP.	London	£400

Contact Virginia McGraa

BOMARC 01-402 0995
60/49 Queen's Gardens, London W.2.

(9309)

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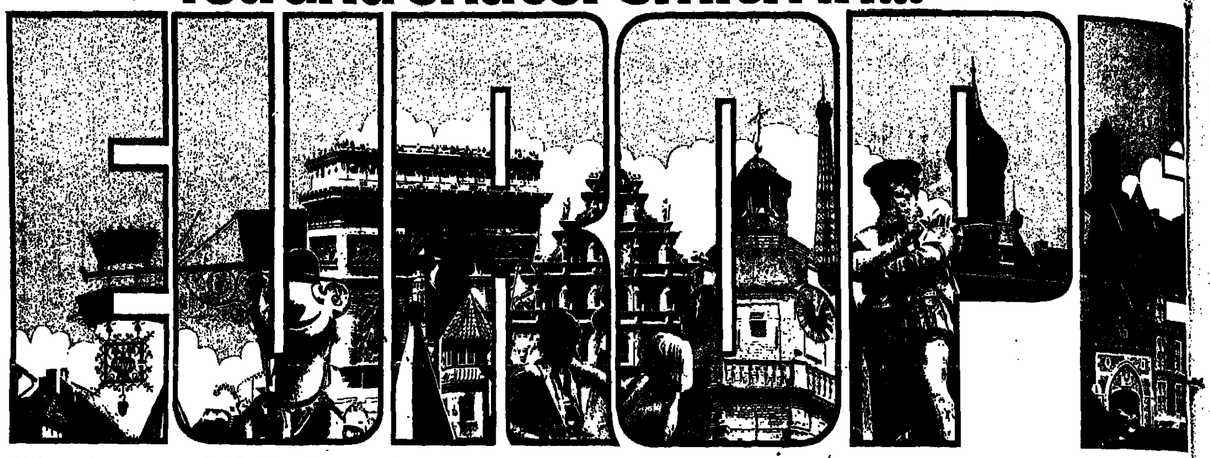

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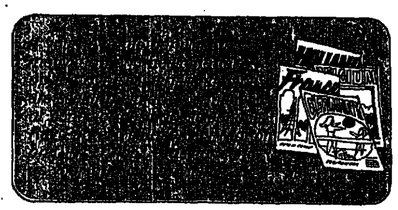
Shuter Smith has always attached great importance to providing a personal service in the U.K., carefully matching the needs of our clients to those of the individual. Now we are extending this same highly professional approach into Europe. We'll assist you with all the necessary arrangements, for example, your travel arrangements and documentation, accommodation and removal, as well as providing you with a useful 'Information Pack' on the country you will work in.
In short, we will ensure that you arrive in the right frame of mind to tackle your new job.



A reputable worldwide organisation engaged in an advanced tele-communications project are seeking the following specialists:

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With experience in one or more of the following areas:
- large scale programming developments
- software project planning
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- systems test design
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Candidates should have a degree in maths, electrical engineering or computer science. Management skills and a willingness to travel are essential.

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With experience in the following areas:
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An excellent remuneration and benefits package is offered and career development prospects within this Company are exceptional.

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A number of opportunities exist for people with experience in any or all of the following areas:
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A world leader in the engineering and construction industry is seeking a D.P. professional with the following experience:
- knowledge of IBM Cobol + VSAM/CICS/IMS
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This is a first class career position with a Company totally committed to individual development. In addition to a competitive salary and benefits package, a generous overseas allowance is offered.

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- Experience in database maintenance and direct files
- Ability to speak French an advantage.

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- ICL 2976/Cobol/VME-B/DMS
- Ability to speak French is essential.

Both positions are for permanent fixed-terms periods.

ANALYST/PROGRAMMERS *WEST GERMANY*
Essential requirements are Univac 1100 and Fortran experience. Knowledge of airline systems a distinct advantage. Positions are permanent fixed-term periods Excellent salaries and a fast-moving and stimulating work environment.

PROGRAMMERS — IBM 53, 34 and/or S38 — RPG II/III *BRUSSELS*
International company with prestige offices in the heart of this thriving city are seeking people aged 21-30 for permanent development projects. Applicants should be good communicators, enjoy working in a team environment and have the ambition to progress into analysis and project leadership as soon as possible. First class salary and benefits package including full relocation expenses.

European headquarters of an advanced technology corporation is seeking two D.P. professionals with the following experience:

PROJECT LEADER *BRUSSELS*
- Burroughs mainframe and/or IBM 4341
- Cobol/DMS II/Kande op. system
- Distribution/Shipping systems
- Good communication and leadership skills.

ANALYST/PROGRAMMER
— With IBM or Burroughs Cobol and proven analytical skills. Preferred age mid to late twenties.
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D.P. professional aged 30+ with strong man management skills for 1 or 2 year assignment. IBM mainframe experience preferred. Salary to £26k with free accommodation, car, chauffeur etc. Start end of July.

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Involvement with major industrial companies requires proven ability to direct and control multi-disciplinary teams in a technically demanding environment.

Current projects include work in draughting, geometric modelling, plant design, and operations/process planning. These applications involve extensive use of advanced database techniques and 'State of the Art' graphics.

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Contact: David Hendry

Ferguson Thorley Bowles Associates Limited
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CICS VSAM Assembler Programmers
★ H.P. 3000 IMAGE Analyst/Programmers
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System 38 RPG III Analyst/Programmers
★ CICS/DL/I Programmers
★ CICS/PL/I Analyst/Programmers. July start.
ME29 TME
2900 IDMS VME/B
IBM Cobol (3-5 years) for 8100 Project. July start.
VME/B Systems Programmer (Superstructure/Collector)

SOUTH
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★ T.P. Designers
★ System 10 Assembler Programmers
★ System 10/25 Cobol
IDMS Programmers
IDMS Design and Implementation
★ 1900/2900 VME/B Fortran Conversion
T.P. IDMS Analyst
ME29 Cobol T.P. Programmers

WALES & MIDLANDS
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★ Denotes immediate starts.

MIDLANDS
Contractors interested in working in this area are asked to register with the Manchester office. We will shortly be covering this region from our new offices based in Birmingham.

PERMANENT
We have a number of vacancies for Programmers and Analyst Programmers with IBM System/34 experience in Manchester, Leeds and Birmingham

For Northern Contracts, telephone or write to:

Alan Morton
GUARDIAN STAFF SERVICES LTD.
St. James's House
Pendleton Way
Salford M6 5JA
061-737 1331

Sam Peace
GUARDIAN STAFF SERVICES LTD.
Deacon House
Bescroft Road
Leeds LS14 6JD.
0532 733724

For contracts in the South and Midlands contact Alan Morton. (0026)

EXCELLENT CONTRACTING OPPORTUNITIES

Our immediate domestic and international consulting needs are detailed below. If you are of a professional disposition, skilled and dedicated, and wish to join our permanent or contract staff, please contact us in respect of these and future opportunities.

INTERNATIONAL

Hixdorf 8870 or 8055	Programmer	USA
COBOL, DOS	Programmers	USA
COBOL, IBM	Analyst/Programmers	USA
RPG II, IBM3/34	Analyst/Programmer	Africa
MSA, General Ledger experience	Analyst	USA
ADABAS, NATURAL	Analyst/Programmer	USA
HP3000, IMAGE, QUERY	Designer	USA

UK

COBOL, IMS/DB and/or DC	Designers: Programmer/Analysts	Home Counties
COBOL, CICS, DL/1	Project Leader, Programmers	Home Counties; Aberdeen
COBOL, HP3000, IMAGE	Analyst/Designer, Programmers	London
PL/1 IBM S/38 or S/34	Analyst/Programmers Analyst/Programmers	Essex Home Counties; London
IBM, VM Prime Burroughs 6800, COBOL	Project Leader Designer Analyst/Programmer; Programmers	Home Counties London Home Counties

For more information please contact:

Resources Department
TANGENT COMPUTER SERVICES
162/166 South Street
Romford, Essex
Tel: Romford (0708) 760201
(24 hour answering service)

(0009)

CROSSWORD

Solution to Prize Crossword No 29

1 V	O	2 O	D	3 O	O			4 C	O	5 D	I	6 S	T	7 S
I		A		O		8 B		O		E		E		A
9 S	C	R	A	P	I	R	O	N		10 S	M	A	L	L
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25 D	R	E	S	S		26 B	E	L	E	A	G	U	E	R
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27 D	E	S	I	R	E	D			28 T	R	A	S	H	Y

SHIRLEY Somerville, a systems analyst at West Middlesex Hospital, is the £10 winner in our competition for June. A £5 prize goes to William Goram, a shift leader in the computer room at Leyland Vehicles, Bathgate, West Lothian, and to Geoff Smith, a freelance programmer who lives in Worcester Park, Surrey.

CONSULTANTS, ANALYSTS and PROGRAMMERS
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London

Programmer — Must have at least 3 yrs exp. of COBOL and the ability to deal with people at all levels. To £11,000 + Bonus.

Programmer — Deg. Maths/Computer Science. With indepth experience of developing Real Time Systems on PDP 11s using FORTRAN or CORAL. (Highly Neg

Programmers — With at least 2 years' commercial exp using COBOL and/or RPGII. To £10,000.

Surrey

Project Mgr/Systems Analyst — 2/3 yrs exp of manufacturing Control Systems Accounting Systems, Distribution, Payroll, Financial Modelling etc DEC PDPII systems. DIBOL and RSTS an advantage. c £10,000 + Car.

Analyst/Programmer — At least 3 yrs exp. of Sales, Purchase and Nominal Ledgers and Sales Order Processing. Knowledge of Interactive systems development using a high level language (e.g. COBOL) essential. To £10,000.

Programmer — Min 2 yrs DEC PDPII with RSX 11M exp. with good knowledge of COBOL to c £9,000

Sussex

Systems Consultant — Degree of professional accounts qual. Must have experience of Systems Analysis on Mini Computers. (Neg

Programmer — Graduate with at least 1 yrs commercial exp using Mumps or Basic. £6 000 – s a e

Programmer/Analyst — Good RPGII experience with some analysis work. c £9,500

Kent

Programmers — with good knowledge of IBM 34 exp. of RGII preferred but RPGII would be considered. To £10,000

For further details of those and other current vacancies please contact

DEREK STANLEY
0293 514071 – 9 a.m. – 6 p.m.
ata COMPUTER RECRUITMENT
34 The Boulevard, Crawley
(out of hours answering service) (9992)

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LECTURER 1

in Computer Studies/Data Processing from 1 September, 1982.

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Salary on the Burnham Scale – £8388-£9267.

Further details and application forms available from the Principal's Secretary (sae please). Completed application forms to be returned within two weeks of the appearance of this advertisement. (9991)

BOX NUMBERS

Box number replies should be addressed to

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The Quadrant
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SALES EXECUTIVES

WESTWARD is a leading British company which designs and manufactures raster graphic display systems for the computer industry. The substantial growth of our operations in the U.K. has created new vacancies for Sales Executives, particularly in the Midlands and South.

Applicants will be expected to have direct relevant field sales experience in Computer Graphics, and a sound technical background.

The importance of these positions will be reflected in the comprehensive remuneration package which provides an earnings level attractive to successful sales personnel.

If you are interested, please send detailed C.V. to Sandy Hooper at the address below.

Westward Micro Systems Limited
Alexandra Way, Ashchurch
Industrial Estate, Tewkesbury
Gloucestershire GL20 8NB
WESTWARD

SYSTEMS PROGRAMMER
Norwich

Norfolk County Council and Norwich City Council's Joint Computer Department require an experienced IBM Systems Programmer.

The Department is planning conversion from OS/VS1 to MVS and a move from the present 370/158 to twin 4341/2 machines.

Suitable applicants will have experience in several of the following: MVS, JES2, CICS/VS, VTAM, NCP, PL1, GUTS, ASSEMBLER and VSAM. Consideration will be given to retraining experienced VS1 Systems Programmers in MVS and JES2.

The successful applicant will be part of a team of four and will be expected to take responsibility for a major area of software and to provide back-up for his/her colleagues in others.

The Computer Department is housed in County Hall, a modern building on the southern edge of Norwich. Facilities include a staff restaurant, social club and a wide variety of sports activities.

The salary offered is in the range £8,190 to £9,528 (award pending). Contributory Pension Fund, assistance with relocation expenses including temporary housing in appropriate cases.

Further details from Ian McAlister, Chief Systems Programmer – (0603) 611122, extension 5159.

Applications with c.v. to: Computer Manager, Norfolk and Norwich Joint Computer Department, County Hall, Norwich NR1 2DH. (0134)

Computer Programmer
PL/1 and/or RPGII
Salary circa £7,000

A vacancy has arisen for a Programmer with E. Gomme Ltd., who design and manufacture G-Plan furniture. This is an opportunity to fill a key position in a small team, dealing with a wide range of commercial applications.

All development is performed on-line for both batch and T.P applications.

The installation comprises a ½ megabyte 370/125 with 3340 disks, tapes and local VDUs operating under DOS/VS.

If you have more than 2 years' experience of PL/1 and/or RPGII, here is your opportunity to fulfil a major role, reporting to the chief programmer.

Salary is negotiable according to experience.

Please write to:

Company Personnel Manager
E. GOMME LIMITED
Spring Gardens
High Wycombe, Bucks. (0022)

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Required for expanding training company.

Knowledge in COBOL essential and ability to teach CITY & GUILDS 748/747 and System Analysis courses.

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Write with C.V to:
PERSONNEL DEPARTMENT
AUTOMATED DATA SYSTEMS LTD
PARAMOUNT HOUSE,
104-108 OXFORD STREET,
LONDON W1.

SYSTEMS ANALYST
£8190-£8733 p.a.
South Coast

This vacancy is in the Computer Division of the Treasurer's Department based at Littlehampton. The person appointed will be expected to draw up systems specifications and provide recommendations in report format.

The successful applicant will be part of a small development team headed by the Systems Controller, and a sound programming background with COBOL experience is essential. Honeywell experience would also be an advantage.

The Council currently operate a Honeywell Level 62, Model 40, disc and tape configuration, providing batch and TPS applications.

For an application form, job description and details of the Council's relocation scheme apply to: The Manpower Officer, Council Offices, Littlehampton, West Sussex BN17 5Ep.

Telephone: Littlehampton 6132, Extn. 316

Closing Date: 15 July, 1982

Arun District

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The post entails all elements of logistics support at their West London Centre, covering administration, control and distribution of spares, and associated repair facilities.

Current MIS and logistics expertise is essential for this key appointment.

For an informal, confidential discussion, please telephone Jeff Bowman, either at the office (0905) 28469; or at home, evenings/weekends, on (0905) 67457.

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Our client is about to establish a sales organisation for the launch of a completely new computer system, which will be sold primarily to established computer users. They wish to recruit an experienced manager who has extensive field sales experience of mini and/or micro computer systems and has the skill to formulate policy and recruit his own team which will operate from a base in the

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Candidates are likely to be currently working for a major computer manufacturer at branch sales management level or in a more senior capacity within a significant micro computer company.

Please provide complete career details to Alasdair Scott or Alan Williams, quoting reference WMA/062

(8979)

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WEST YORKSHIRE METROPOLITAN COUNTY COUNCIL

ANALYST PROGRAMMER POLICE PROJECT
£8991 – £9993 or £9528 – £10581

A vacancy exists for a Senior Analyst Programmer in the County Council Finance Department who will be seconded to the West Yorkshire Metropolitan Police Computer Project Unit, to assist in the current development and enhancement of an existing Ferranti Argus Real Time Command and Control Computer System. The System is Programmed in CORAL 66 and experience in that language is essential.

In addition to the above responsibilities the person appointed will be required to support the Police Project team on other existing and future computer applications.

Applications welcome from disabled people.

Application forms from Director of Manpower Services, 8 St John's North, Wakefield WF1 2QA (Telephone 367111 ext. 2841), to be returned by 8 July 1982.

Additional information can be obtained from Superintendent K. Bradshaw, West Yorkshire Metropolitan Police Computer Project Unit (Telephone Wakefield 375222 ext. 2240). 0043

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We fully understand the needs of such companies as well as knowing about the many job opportunities that never appear in the press. These well respected names depend on our professional skills and confidentiality. Can you afford less?

Contact: Alan Williams
Peter Hubble or Alasdair Scott — ANY TIME!
(9980)

LONDON & SOUTH — MIDLANDS & NORTH

BOX NUMBERS

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Box Number ....
c/o Computer Weekly
Quadrant House
The Quadrant
Sutton, Surrey SM2 5AS

SALES BIT

Quality of Management – 15

So you think only other people have breakdowns?

MY job gives me an unusually wide contact with senior managers throughout the computer industry, and over the years one of my greatest pleasures has been the development of good personal relationships with many of them.

As the mutual confidence has progressed, and particularly since some of them became aware of the nervous breakdown I suffered early last year (remember those health farm stories as I emerged from the tunnel? – previous correspondents please note!) I have been surprised to learn how many are afflicted to some degree by the symptoms of stress.

If you are an aware manager you probably realise that a nervous problem is one of the occupational hazards. Nevertheless, its appearance always comes as a complete surprise, and once you've got it you either have no real perception of what you are suffering from or, if you have, you feel so perplexed and abnormal that the last thing you want to do is discuss it with anyone, least of all actually admit to suffering from it.

There are literally no limitations to the multifarious manifestations of stress. The managing director of a major minicomputer manufacturer once told me of an alarming stress-related experience: "I was driving home after work. It had been a hard day in a sequence of many and I was glad to be on my way. Suddenly I was struck with a strange sensation I can only describe as total unreality.

"It was as if my mind had been detached from my body, a removed and an unwilling observer of my own actions and emotions. The outside seemed to be pressing in; I was torn between the conflict of wanting to stop and the desperation of getting home.

"My neck and shoulder muscles went like iron. I gripped the steering wheel tightly and stared at the road ahead. I was sure that passing motorists were looking at me. Somehow I got home, feeling totally confused and more exhausted than I can remember. Yet after a sit-down and a cup of tea the feeling slowly went away.

"Looking back I know now that it could only have been the result of continually exposing myself to more pressure than could reasonably have been expected of me."

That is not the kind of experience one feels inclined to discuss with others for fear of appearing silly, inadequate or even – horror of horrors! – mentally ill. Even worse, there is the constant anxiety that the situation may recur, perhaps in less private and more embarrassing circumstances.

So you worry about it, and very soon the situation is compounded by not only the original anxiety that caused the original stress symptom but also the worry about the symptom itself.

Readers will by now already be divided into two categories; those whose reaction is "What on earth is he on about?" and those who recognise the picture only too well. Of the former many are yet to experience the early warning signals of an overstressed metabolism, the price of enduring continual emotional pressure.

Another business friend, the managing director of a major computer manufacturer, always carries a single Valium tablet around with him. He is thinking of mounting it in a glass box on his office wall with the legend "In case of emergency – break glass!"

The adverse effects of enduring too much stress are prevalent among people who operate in a management role. This situation must be compounded within a fast-moving, high-pressured business like the computer industry. Determination to achieve can be an extremely negative force if taken to excess.

What is stress, its symptoms and causes? As a non-medical person I can do no more than state experience-related opinions which may differ radically from established fact. However, one thing is without question: stress in moderation is a force for good. Few things in this life are achieved without some pressure to reach an established goal.

Management by objectives has become an integral part of everyday business life. Salespeople have quotas, workforces have production targets and many writers would never write a word if it were not for the artificial pressure of a publication deadline. It is when such pressure becomes both unmanageable and without a discernible end that stress becomes a destructive force.

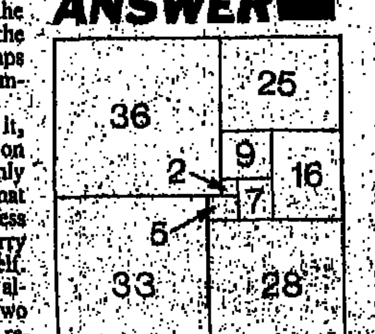
It could be regarded as a human equivalent to nuclear power: contained it enhances, unleashed it destroys.

The causes of stress are unlimited; they differ as widely as people and circumstances. The effects are equally as widely as people and circumstances. The effects are equally diverse.

Make no mistake, inadequate performance for reasons of negative stress is common, subsequent nervous disorder is no respecter of rank or race, and most people think it could never happen to them.

As a friend of mine said, when learning I was "on the box": "I don't believe it, not a hard case like you!"

More next week.

Alan Williams

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